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PUEBLO PERIOD SITES *in the* PIEDRA RIVER *section,* *Navajo Reservoir District*

assembled by
Alfred E. Dittert, Jr.
and Frank W. Eddy

Museum of
New Mexico Press

number 10
Museum of New Mexico
Papers in Anthropology
Santa Fe, 1963

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63-64043

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A Salvage Archaeology Program conducted by the Museum of New Mexico in cooperation with the National Park Service, Southwest Region, United States Department of the Interior; and the Colorado State Highway Department, in the Navajo Reservoir District of the Upper Colorado Storage Project.

University of Florida
1853

Edited by

ROBERT G. FERRIS

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NAVAJO PROJECT STUDIES IX

Library of Congress Catalog
Card Number: 63-64043

[redacted]

Price: $2.50

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PREFACE AND ACKNOWLEDGEMENTS

This publication consists of a compilation of reports on salvage archaeology investigations in the relocation construction zones of Colorado State Highway 151, of a section of the Denver and Rio Grande Western Railroad, and of an Archuleta County road in Colorado-all in the Sandoval and Piedra River Sections of the Navajo Reservoir District. The transportation routes had to be relocated because the existing routes will be inundated by the Navajo Reservoir.

The original site survey in this area was made by Frank W. Eddy, Laurens C. Hammack, and Alfred E. Dittert, Jr. (Dittert, Hester, and Eddy, 1961). However, subsequently, plans for the new route of Colorado State Highway 151 indicated that portions of it had not been examined previously. These portions were investigated by Barbara E. Allarie and Dittert, Jr. Eddy then took charge of the excavations at the Candelaria Site, LA 4406, and James J. Hester directed excavations at the Serrano Site, LA 4408. J. Anthony Pomeroy worked as an Assistant Field Archaeologist with Hester. Fred Wendorf and Dittert worked at both sites, as conditions necessitated; and Stewart L. Peckham temporarily assisted at LA 4408. Laborers were obtained from Taos, New Mexico. The excavations at both sites were completed during September and October of 1959.

The Railroad Site, LA 4103 and the Martinez Site, LA 4104 were excavated in May 1960, under the supervision of James V. Sciscenti, who was assisted by James O. Marshall. Hester and Eddy helped at these sites for short periods. Labor was recruited from the surrounding settlements. Permission to work at LA 4408 and LA 4103, prior to the time the land was purchased by governmental agencies, was obtained from Antonio Serrano and Paul Harris, both of Arboles, Colorado.

In addition to its gratitude to the above individuals, the Museum of New Mexico expresses its appreciation for the assistance given by many organizations. The National Park Service, Southwest Region, provided funds for the salvage archaeology program through a cooperative agreement with the Museum of New Mexico. Labor for the excavations on Highway 151 was made available through the efforts of James Casey of the Colorado State Highway Department at Durango, Colorado. Information concerning the railroad and county road re-routing was provided by James Seery, then of the Bureau of Reclamation Office at Farmington, New Mexico.

Grateful acknowledgement is made to the Fort Burgwin Research Center at Taos, New Mexico, for the use of its backhoe at LA 4406 and LA 4408. The operation of this equipment by Wendorf speeded up the work considerably.

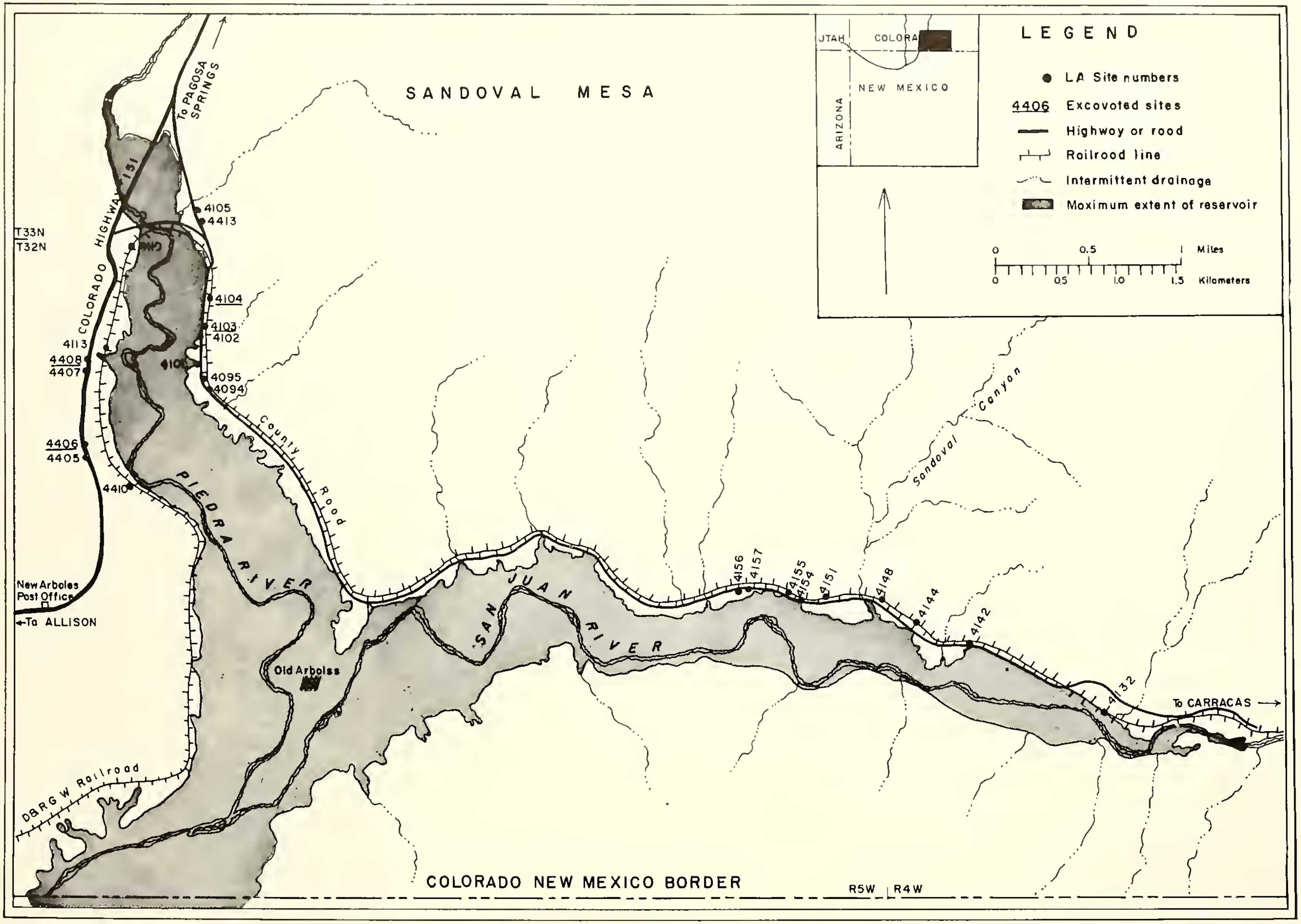

Fig. 1. Map of the Navajo Reservoir in Colorado, showing the relocation of Colorado State Highway 151, the Denver and Rio Grande Western Railroad, and the Archuleta County road. Only the sites endangered by the realignment are shown on the map.

CHAPTER I

ORIENTATION OF THE HIGHWAY AND RAILROAD SALVAGE EXCAVATIONS

by ALFRED E. DITTERT, JR.

The relocated portions of Colorado State Highway 151, the Denver and Rio Grande Western Railroad, and of the Archuleta County road from Arboles to Carracas in Colorado are within the Sandoval and Piedra River Sections of the Navajo Reservoir District (Dittert, et al, 1961, Fig. 3). Both sections lie immediately north of the Colorado-New Mexico State line. The Sandoval Section extends eastward along the San Juan River from Arboles, and the Piedra River Section includes the area adjacent to that river, north of Arboles (Fig. 1).

North of the San Juan River a marked change in land form occurs along the Colorado-New Mexico State line, where the vertically incised, sandstone mesas in New Mexico give way to steeply sloping clay hills. A profile of the San Juan River Valley, in the Sandoval Section, exhibits a steep rise of some 1,500 feet south of the river. To the north, most of the terrain is characterized by complex alluvial fans, emanating from the clay hills. Between the two contrasting terrains, the river occupies a relatively narrow, meandering bed, incised into the inter-fingering deposits of the alluvial fans and Recent terrace river sediments. The first Pleistocene bench above the river, on which the rights-of-way are situated, is an intermittent feature of the north slope of the valley. Though identification of the benches with the Pleistocene Epoch is tentative because of the lack of fossil remains; it is probably correct, based on what is known of the local geomorphology and stratigraphy (Dittert, et al, 1961, p. 20).

The valley of the Piedra River is relatively flat, and from 0.25 to 0.8 miles wide. Most of the valley consists of Recent terrace deposits incised in a meandering pattern by the river, and bounded by Pleistocene benches. Above these benches, the slope is variable but gentle when compared with the vertical valley walls in the lower Reservoir. The combination of physiographic features in the two sections has been included in the Arboles Land Form type (Dittert, et al, 1961, pp. 18-19).

The different character of the terrain north and east of Arboles, from that of the lower Reservoir, provides slightly different resources for a prehistoric population, especially in the type of arable land. Entrenchment of the San Juan River has been discussed by Dittert, et al, (1961, pp. 21-23). As the cutting proceeded headward, and the water table in the Recent terrace was lowered, populations withdrew upstream to continue cultivation on the Recent terrace. After entrenchment had gone beyond the Reservoir District, groups remaining there relied, in large part, on flood water cultivation. The topography of the Sandoval Section and, to a lesser degree, of the Piedra River Section, is the best suited

TABLE 1

EVALUATION OF SITES ON THE RAILROAD AND HIGHWAY REALIGNMENT

SITE	PHASES	REMARKS
LA 4132	Rosa, Piedra, Arboles, and Gobernador	Part of site is already destroyed by the railroad; badly eroded. No excavations recommended.
LA 4142	Rosa, Gobernador	Site badly eroded. Only south end of site will be destroyed. No excavations recommended.
LA 4144	Rosa, Piedra, and Gobernador	Only a very small portion of refuse from site will be removed. No excavations at present.
LA 4148	Piedra	Small portion of refuse from site will be destroyed. Should be excavated later. Type site for temporary settlement during the Piedra Phase.
LA 4151	Rosa, Piedra, and Arboles	Portion of refuse will be destroyed, but structure will be undamaged. No excavations recommended at present.
LA 4154	Rosa and Arboles	Site badly eroded. Only refuse remaining, on crests of small clay ridges. No excavation recommended, even though site will be destroyed.
LA 4155	Rosa	Right-of-way goes through site. Very little remains of sites, except refuse and an exposed hearth. Not proposed for excavation.
LA 4156	Gobernador	Erosion has removed or disturbed most features at the site. In center line of right-of-way, but no excavation recommended.
LA 4157	Rosa and Gobernador	In center line of right-of-way. Duplication of features at other Rosa Phase sites already selected for excavations. No work proposed.
LA 4094	Rosa and Piedra	Right-of-way includes only a very small portion of the refuse. No excavations recommended.
LA 4095	Rosa and Arboles	One side of the single structure badly eroded. Construction will not include main part of site. No work proposed.
LA 4101	Piedra and Lucero	Only west end of site included in construction zone. Features duplicated by those at LA 4103.
LA 4102	Rosa, Piedra, and Gobernador	Site almost destroyed by looting. Construction will affect only the west end. No excavations recommended.
LA 4103	Rosa, Piedra, Arboles, and Gobernador	In center line of right-of-way. Although there has been vandalism, surface rooms and pit houses are well preserved. Excellent late Piedra Phase manifestations. Complete excavations recommended. (See Chapter IV).
LA 4104	Rosa, Arboles, and Gobernador	Well preserved masonry unit recommended for excavations (Chapter V). Rosa and Gobernador Phase structures badly eroded, and no work is suggested.
LA 4413	Gobernador	Petroglyphs may be destroyed by road cut. Recommend a record of the site (Schaafsma, 1963, p. 51).
LA 4105	Rosa and Gobernador	Concentration of fire-cracked rock partly removed by existing road. Should be tested to determine cultural placement and define deposition.

TABLE 1 - continued

SITE	PHASES	REMARKS
LA 4110	Rosa and Piedra	Only a small, outlying unit will be destroyed. Main part of site can be used for later work.
LA 4113	Rosa and Piedra	Site almost destroyed by erosion. Construction will affect only west end. Not recommended for excavation.
LA 4408	Rosa, Piedra, and Arboles	In center line of right-of-way. Earlier than LA 4103 and apparently has well preserved pit houses. Should be a good example of a multiple unit, Piedra Phase site. Complete excavation recommended (Chapter III).
LA 4407	Rosa	In center line of right-of-way. Pit house is preserved, but surface structures destroyed by an old road. Duplicates other Rosa Phase sites selected for excavation. Map for settlement study. Excavate only if LA 4408 is not as extensive as surface indications suggest.
LA 4406	Piedra	In right-of-way of Colorado State Highway 151. Good example of an early Piedra Phase, single unit site. Should be completely excavated (Chapter II).
LA 4405	Rosa	Very sparse refuse and no evidence of structures. Only a part of the site will be destroyed. No excavation recommended.
LA 4410	Rosa and Gobernador	West end of site in right-of-way and remainder may be used for borrow. Difficult access for the backhoe. Duplicates selected sites near Arboles. No salvage recommended.

of any portion of the Reservoir District to flood water cultivation. A lower water table, during the late part of the Pueblo Period, permitted the construction of pit houses closer to the river, even though the outwash fans and the first Pleistocene bench remained the favored locations.

Availability of geological materials here, as compared with the lower Reservoir, is characterized by a shift in proportion, rather than by a change in kind. Thick beds of vari-colored clays are present as outcrops, or as caps on benches. Igneous and metamorphic cobbles form the river bed, and bench gravels are common in many parts of the sections. Sandstones occur as thin beds, or as rolled cobbles and boulders. Biological resources include a few more species of the Transition Zone than in the area toward the south, where Upper Sonoran forms are dominant (Dittert, et al, 1961, Chap. II).

Cultural periods manifest in the Navajo Reservoir District and their distribution within geographic sections of the District are set forth in the Reservoir survey study (Dittert, et al, 1961). Cultural-temporal units recognized are: Archaic Period (3000-500 B.C.); Pueblo Period: Los Pinos Phase (A.D. 1-400), Rosa Phase (700-900), Piedra Phase (850-950), and Arboles Phase (950-1050); Navajo Period: Dinetah Phase (1550-1700) and Gobernador Phase (1700-1775); and Historic Period: Lucero Phase (1860-1960). Subsequently, a phase intermediate between the Los Pinos and Rosa Phases, the Sambrito Phase (400-700), was defined as a result of excavations at Sambrito Village (Dittert, Eddy, and Dickey, 1963b). The lack of surface remains precluded an earlier recognition of the Sambrito Phase. A summary article by Dittert, Eddy, and Dickey (1963a) should be consulted regarding its nature.

Distinctive aspects of the periods of occupation in the Sandoval and Piedra River Sections may be summarized from accumulated information. There is an absence of Lithic Period and Los Pinos Phase sites. A single Sambrito Phase site is known in the extreme lower end of the Sandoval Section. However, the Sambrito Phase cannot be compared quantitatively to others in the cultural sequence because of conditions mentioned above. This component was not discovered during the original 1959 survey because of an overlying Piedra Phase component.

The Rosa Phase is represented by a total of twenty-five components. An increase in population is apparent for the Piedra Phase, and most of the later Arboles Phase sites are found within these two geographic sections. If the latter two phases are considered together, there is a total of sixty-nine components.

Navajo Period remains of the Dinetah and Gobernador Phases are more common in the Sandoval Section (23), than in the Piedra River Section (8). In neither case are Navajo Period sites as common as they are at the confluence of the Pine and San Juan Rivers. The concentration of Lucero Phase habitations here is among the highest in the Navajo Reservoir District. However, site records were not made because the habitations were still occupied.

The new highway and railroad lines have been located at or above the 6,105 foot contour, the highest water level, which, in many instances, follows the edge of the first and second Pleistocene benches. The edge of these benches is a preferred situation for prehistoric sites in both the Piedra River Section and the Sandoval Section of the Navajo Reservoir District (Dittert, et al, 1961, Fig. 27, 28). Consequently, almost one-fourth the total number of sites recorded in the two sections are adjacent to, or located on, the new rights-of-way. Of the twelve sites completely in the construction zone, the four discussed in this publication have been selected on the basis of apparent promise, from surface indications, of shedding light on defined problems about prehistoric occupations. In Table I, a brief evaluation is given for each site considered. Conditions are enumerated in the table which led to the selection or rejection of the site for excavation under the highway and railroad salvage program.

The following chapters (II-V) present the results of excavation conducted in this salvage operation. Since the analysis and writing were carried out over a three-year period (the Serrano Site in 1960, the Candelaria report in 1961, and the remaining two in 1963), some discrepancies in terminology exist, particularly in the ceramic classification. The basic typology was established in the original survey report (Dittert, et al, 1961, pp. 135-156). Subsequently, a major excavation of a large pit house village was undertaken at Sambrito Village, LA 4195 (Dittert, et al, 1963b). This work produced a large sample of material from the Sambrito through Arboles Phases of the Pueblo Period; and the sample will be used as a type collection for comparative purposes within the entire Reservoir. Based on the detailed analysis of this collection, many new pottery types have been established, which are utilized in the reports included herein on the Martinez and Railroad Sites, but which were not available when the Serrano Site material was studied. Because some of the type concepts were only beginning to be constructed when the Candelaria Site was studied, only a partial use of the new concepts could be employed. To a somewhat lesser degree, the same situation is true when classifying the stone, bone, and textile data.

CHAPTER II

EXCAVATIONS AT THE CANDELARIA SITE, LA 4406

by FRANK W. EDDY

PROBLEMS AND RESULTS

The Candelaria Site was selected for study to obtain information on a small Single Unit of early Piedra Phase occupation. Survey along the highway right-of-way for the proposed realignment of Colorado Highway 151 had indicated at one location the possibility of two structures (one pit house and one cobble masonry surface room) and refuse (Dittert, et al, 1961, Table 6). Excavation bore out these preliminary observations and supplied information toward defining a self-sufficient, family unit of occupation.

Setting

The site lies within the State Highway right-of-way 0.85 miles south of LA 4408 (Chapter III) in Archuleta County, Colorado (Fig. 1). According to the B.L.M. (formerly G.L.O.) Grid System, it is in T 32 N, R 5 W, Sec. 8, northwest of Arboles, Colorado, on the west side of the Piedra River Valley. In the original Reservoir Survey (Dittert, et al, 1961), this valley is referred to as the Piedra River Section of the Navajo Reservoir District. Prior to its purchase by the Colorado State Highway Department, LA 4406 was owned by the Candelaria family of Durango, Colorado, and is, therefore, designated with that family name.

The site is situated on the broad crest of a northwest-southeast-trending ridge, west of, and roughly paralleling, the Piedra River. The ridge is carved from the surface of a second-level Pleistocene bench. The underlying subsoil deposit, a reddish silty-clay, is relatively free of gravel or bedrock outcrops. Excavations indicate that the clay continues more than six feet; white nodules of caliche, present near the ground surface, increase with depth. A fine, reddish-brown, desert soil, having little humus stain, forms a thin mantle on the ground surface.

The predominant vegetation is an open stand of pinyon mixed with juniper. While excavations were underway, the pinyons produced an excellent crop of nuts. Interspersed with the trees, in small openings and clearings, is a low cover of sage. Sparse weeds and grass make up a small percentage of the ground cover.

Natural resources at the site locality and in the nearby countryside are similar to those at other sites described in this volume, with regard to geological materials such as clays and lithics, and plant and animal foods and products. For a detailed discussion of the total Reservoir District environment and its possible prehistoric use, see Dittert, et al, (1961, pp. 102-110). The well-drained site ridge is advantageous for habitation, and the sub-surface, geological deposits of clay did not present the irksome problem of gravel slumpage to the prehistoric inhabitants as was found a short distance away at the Serrano Site, LA 4408.

Description

When first observed during the highway site survey, the manifestation, later called the Candelaria Site, was characterized by three types of surface indications. A concentration of river cobbles lay on the north flank of a shallow, basin-shaped depression. Some distance to the south, a meager concentration of refuse lay slightly downslope from the architectural units. Excavation showed the depression to be a pit house; the nearby cobble pile is a surface storage unit; and the refuse, a waste disposal from human occupation (Fig. 2). The close association of all of these features, and the absence of nearby, prehistoric remains indicates a Single Unit of brief, prehistoric occupation. In the settlement classification of the Reservoir Survey, it had been termed a Single Unit site (Dittert, et al, 1961, pp.44-49).

Research Procedure

Excavation of the pit house was begun with a five foot square test pit in the approximate center of the surface depression, which disclosed a pit house, though a floor was not immediately encountered. A pollen profile was taken from the east wall of the test area. Soil samples were removed at 0.5 foot intervals on the east wall and sacked in plastic bags. A Case Industrial tractor equipped with a two foot backhoe bucket, from the Fort Burgwin Research Center at Taos, New Mexico, was used to remove the general house fill, down to the burned and collapsed roof fall. Wendorf operated the backhoe and directed the coordinated hand digging by the author and two laborers. The backhoe trenched from the test pit to the wall on the west side, which was then cleared by the backhoe and hand tools. The same procedure was repeated on the east side of the room. In two days, interruped by mechanical failure, the house fill was removed; and the tractor was shifted to LA 4408. Two more days of hand work was done on removing the roof fall and in clearing the floor. After the floor was cleared, a rain storm restricted work to the indoor laboratory at the Field Camp headquarters in Allison for a week and a half. When work was resumed at the site, rain water was still standing on the floor and the walls were sloughed. Work around the pit house was resumed even though the floor was still too damp to walk on. A surface-stripping operation located the vertical ventilator shaft, which was excavated down to the horizontal tunnel into the house.

Clearing of the cobbles of the surface room revealed no definite structural outline. Though troweling disclosed that the cobbles had some depth, no definite floor surface was defined, but one was postulated at the location of the lowest cobbles and of the fragmentary bottom of a pottery vessel. This same system was used in estimating the location of the walls. The exact limits of the structure remain in doubt, but the occurrence of the cobble concentration, as well as the vessel base and charcoal-flecked fill, all lend support to the belief that a surface structure had collapsed in place.

At the refuse deposit, an L-shaped trench was excavated to obtain a sample of the trash material, and to view the profile and its depth. Estimate of the size of the deposit was impossible because of the indistinct margins.

Continuation sheet drawings were made of the individual features, and Dittert prepared a plane table map of the distribution of the individual features and their relationship with the site ridge crest. The slope of the ridge was so slight that a contour map of the area was not deemed necessary.

Detail and overall photographs of

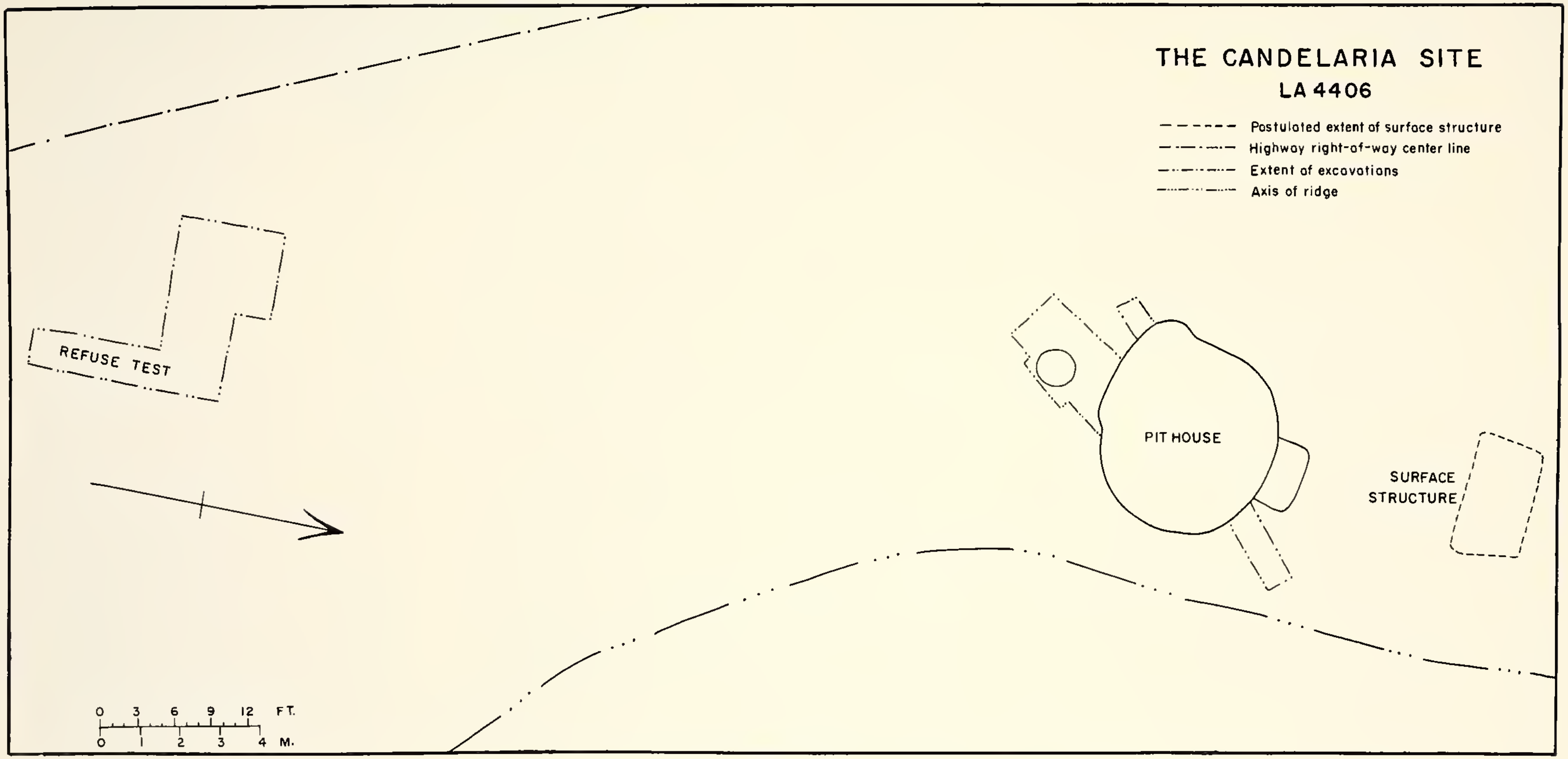

Fig. 2. Map showing the distribution of prehistoric remains at the Candelaria Site, LA 4406.

all features were made with a 2 1/4 x 3 1/4 press camera. Final photographs from a fifty foot ladder were made of the pit house after its floor was dry and completely recleaned.

Conclusions

The Candelaria Site is a close-knit, Single Unit of occupation, consisting of a pit house and an associated surface structure, as well as a nearby trash deposit. The pit house, used as a residence and for ceremonial purposes, was probably where most cultural activities took place; the other units were used for specialized purposes only. The pit house is interesting architecturally because of its rectangular wall recess, undercut alcove niche, two smaller wall niches, and a ventilator tunnel having an interior, bifurcate opening. Domestic use of the house is indicated by the many floor artifacts of utilitarian design, particularly the metates and mano on the east side of the room. The general lack of trade goods indicates a self-sufficient production of craft items. Use of the room for religious purposes is indicated by a series of non-utilitarian artifacts which have religious functions in historic Pueblo Indian culture. Architecturally, the pit house has some proto-kiva characteristics, such as a sipapu, a rectangular wall recess, and wall niches. The dual uses of the house suggest that isolated, Single Unit sites were relatively more independent than individual houses at large village settlements, such as LA 4195 and LA 4380, which contain specialized kivas.

Ancillary site features include a surface structure, probably rectangular in shape, having free standing walls of cobble rock. The nebulous character of the remains and the lack of a prepared floor, or floor features, suggest use for storage and not as a residence.

Near the architectural units, in a deposit of refuse, trenching revealed waste lithics, fragments of broken pottery, and completely disintegrated ash and decayed organic remains. Proximity and the similarity of cultural material indicate that the trash disposal area served the structures.

Taken together, these manifestations and the associated artifacts appear to be products created by one family over a short span of time. The hand-craft products and customs are referable to the Piedra Phase. Dating by ceramics indicates occupation during an early part of this phase, within a time span of A.D. 850-900.

ARCHITECTURE AND REFUSE

Architecture

The appearance, when first discovered, and method of study of the two architectural structures have been described in the preceding section. Below is an account of the actual excavation findings, and an interpretation of their original appearance and use.

PIT HOUSE (Figs. 3, 4)

A circular excavation was dug into the reddish clay of the site ridge. Sides of this hole are straight and the bottom is level, except for a slight upcurve near the walls. A greenish, clay plaster coats the walls to a maximum height of two feet above the floor, and lines some of the wall niches, recess, and alcove. The floor is covered with a hard layer of bluish-gray clay, which also forms a lining and rim for the fire basin.

Five side excavations in the pit bank provided ventilation, and enlarged the area for living and storage. The largest annex is a rectangular recess cut into the upper two-thirds of the north wall; the lower third forms a base continuous with the room wall, resembling a short inset bench. Longer inset benches are commonly found at other pit houses within the Reservoir District. The plan view of a recess in Structure 9, LA 4289, a Los Pinos Phase site in the Pine River Section, resembles this one (Eddy, 1961, Fig. 40). Some kivas in the Mesa Verde District also have similar keyhole recesses.

At the time of excavation, a number of river boulders were in the fill and on the recess surface in jumbled confusion; they appeared to have fallen as a unit from above, perhaps when the recess and the room collapsed.

Near the interior ventilator shaft is a large bulbous alcove formed by undercutting the bank. A break in the floor

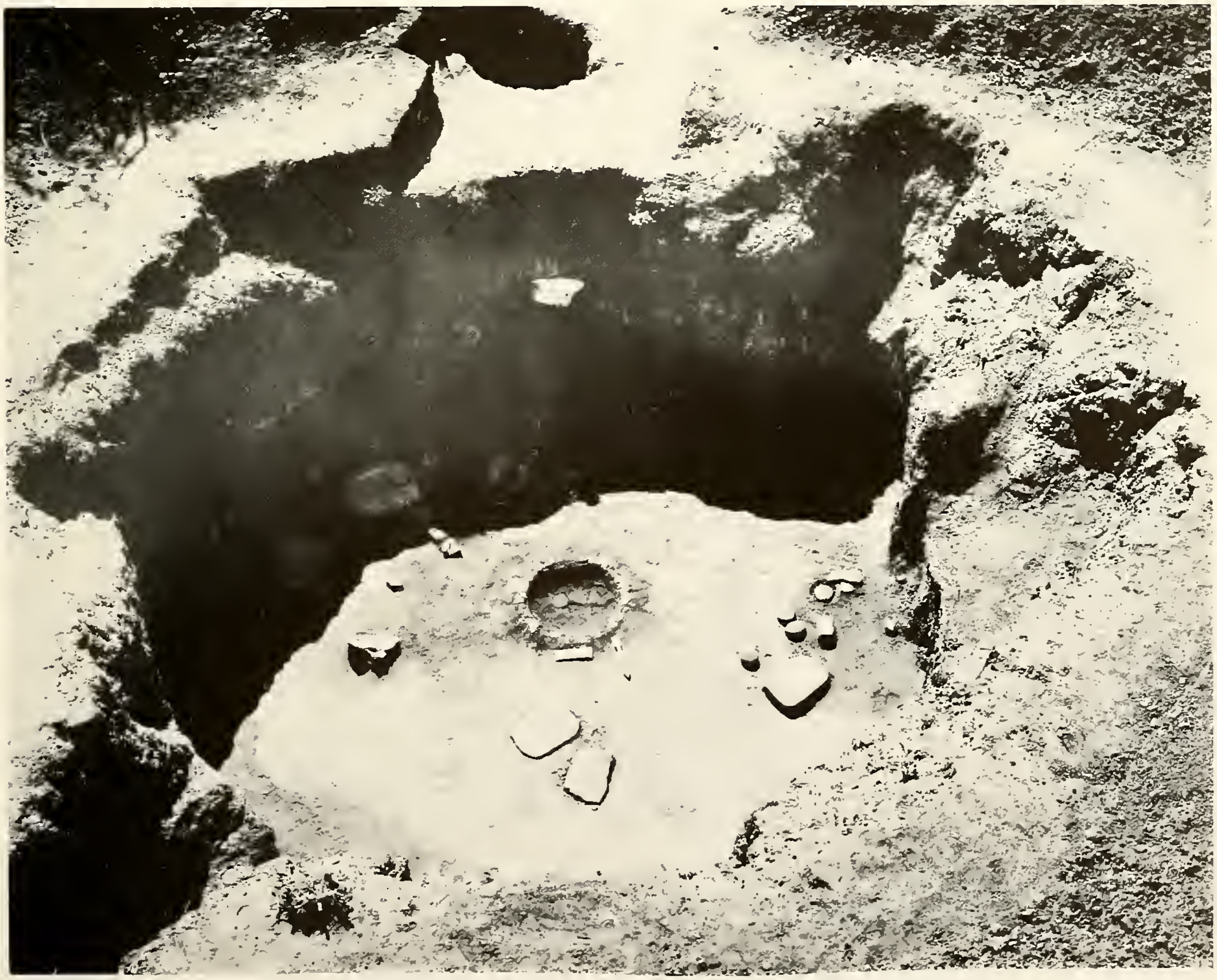

Fig. 3. Pit house showing cleared house floor, Candelaria Site.

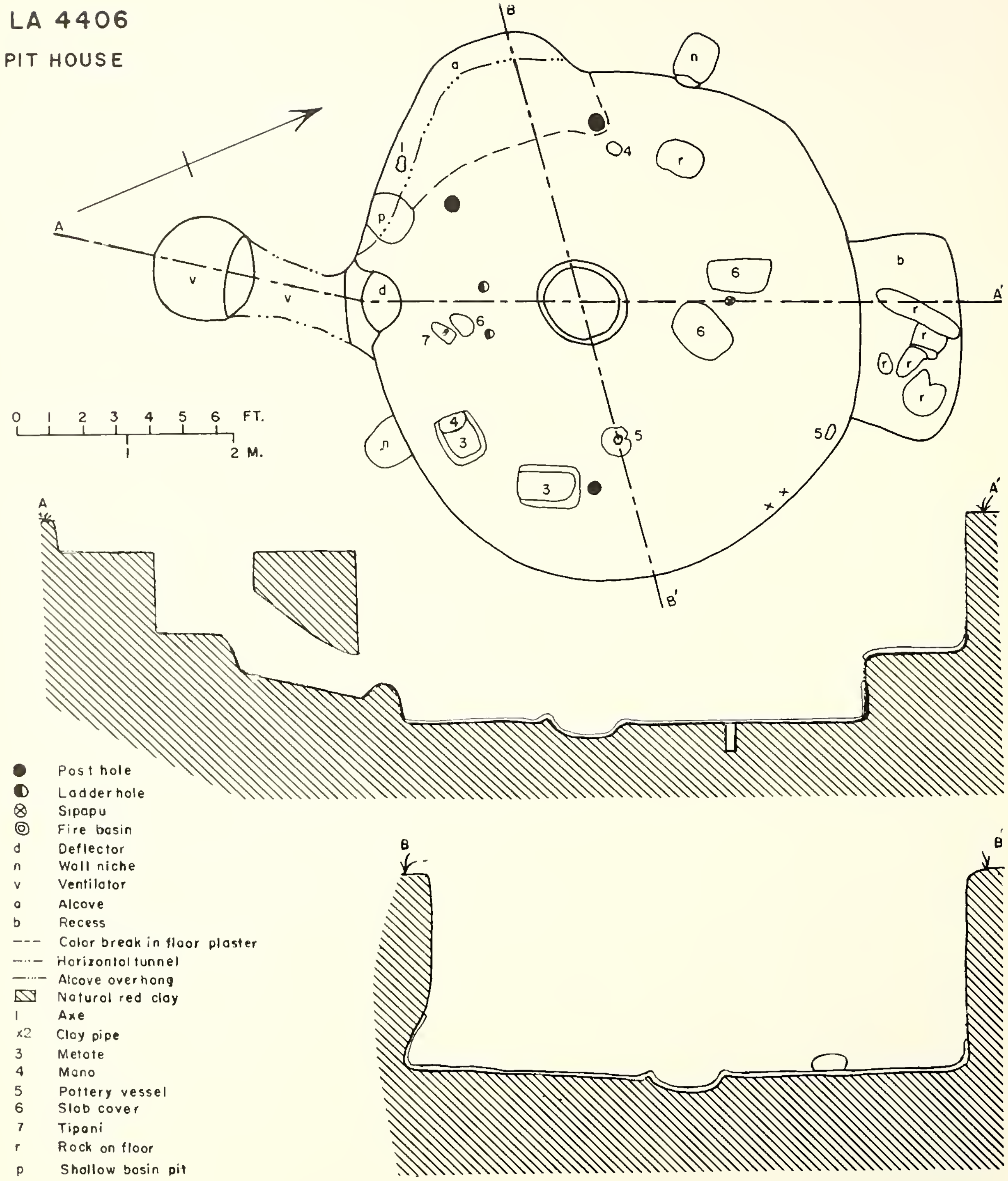

Fig. 4. Plan and profiles of the pit house, Candelaria Site.

coloration, indicated by a dashed line on the house floor plan (Fig. 4), suggests that an upright partition, from corner to corner of the alcove, separated the alcove from the remainder of the room. This postulated partition ties in with one of the main, upright, roof-support posts. A shallow dip in the alcove floor near the ventilator is the only sub-floor depression in the entire room. It would be a suitable pot rest to hold a round bottomed vessel upright.

Two small wall niches are at floor height on opposite sides of the room. One, on the east side of the room near the ventilator, is oval in plan and cross-section. Toward the rear, it is slightly lower than the floor level, and its sides and bottom are plastered with the same green clay as the house walls. It was filled with red clay and sealed flush with the wall by a coat of plaster. At the time of excavation, a fragment of human long-bone protruded through this plaster seal from the interior, disclosing the location of the otherwise hidden niche. No other contents were found. A second wall niche nearer the alcove has a more nearly rectangular plan and cross-section; the floor, alone, is coated with green clay. A river rock is set below the opening to form a sill. No plaster coated the mouth; the niche was empty.

The fifth wall opening, a ventilator system, is between the alcove and the east wall niche, directly across the room from the recess. The system consists of two connecting passages: a sloping tunnel intersecting the edge of a vertical shaft. Neither is lined with plaster. The house end of the tunnel is semi-divided into a bifurcate opening by an oval-shaped mound of white caliche, protruding up from the floor, and carved out of the natural subsoil. This mound deflects the incoming air flow around each side of the curving room wall.

The surface of the pit house floor is broken by four types of architectural details: a fire basin, post holes, ladder holes, and a sipapu. The fire basin consists of a shallow, circular basin lined with clay. Around the orifice is a raised clay rim.

Three post holes were found: two on the west side of the room and one on the east. A considerable area of floor plaster was removed in looking for a fourth, to no avail. Perhaps the fourth post simply rested on the floor surface (A four post support system is common in pit houses within the Reservoir).

A pair of small, shallow, circular holes between the fire basin and the interior vent openings suggest by their position and paired relationship that they were used to seat the floor end of an exit ladder.

A third type of floor hole is located between the fire basin and the recess. This is a small, circular hole, later plastered over. Its location suggests a ceremonial sipapu function.

The fill of the pit house indicates the nature of the superstructure roof. Lying directly on the floor was a layer of burned roof fall, composed of two parts: a fine deposit of light gray ash containing many potsherds and stone chips; this was covered with a deposit of burned and broken fragments of roofing clay. The fragments are of a light brownish clay, characterized by one face with parallel concave casts of logs, and a reverse face smoothed with finger marks. Several fragments were so intensely fired that they have vitrified into a frothy clinker. Resting above the clay fragments were a number of slab covers, and more were on the floor. Much higher up in the fill, several logs leaned against the front edge of the recess.

From this evidence, it is inferred that the roof was made of heavy beams, supported by at least three, and probably four, upright posts. Over this frame, was plastered a heavy layer of sun-dried mud. The ladder holes indicate that a ladder projected to a smoke-entryway hole, probably covered with one of the un-modified slab covers found in the roof fall.

Above the roof fall is a layer of material labeled "general fill" on the artifact distribution tables. This fill material slowly accumulated after the pit house was occupied as rain water washed mud from the surrounding ground surface into the pit. The bulk of this fill is an undifferentiated reddish clay, showing occasional laminated wash lines from standing water. The top layer of this clay fill is brown, and contains more humus because of slower filling. Just beneath the present surface, was found a lens of charcoal-stained clay, which might have been the remains of a forest fire washed into the pit. Finally, the present surface of the depression was covered with a loose, tan, silty-sand, similar to the surrounding topsoil. Study of the pollen samples taken from the profile will show what vegetation surrounded the site, from the time of occupation to the present day.

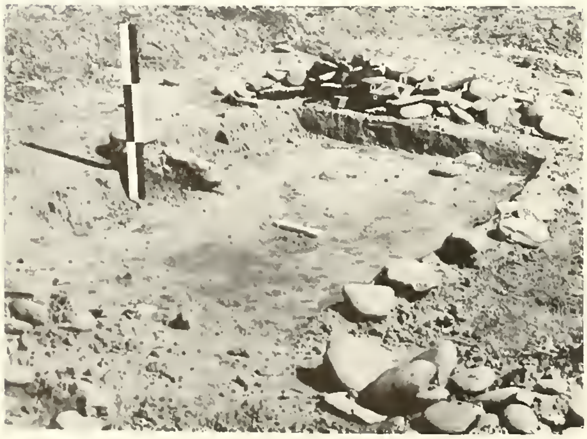

Fig. 5. Surface Room showing the recessed floor area and cobbles from fallen walls, Candelaria Site.

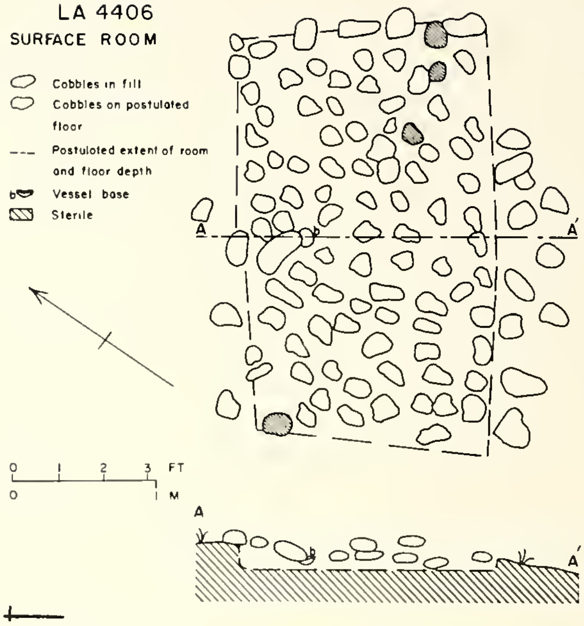

Fig. 6. Plan and profile of the surface room, Candelaria Site.

SURFACE ROOM (Fig. 5, 6)

It is postulated that this structure was originally rectangular in shape, having an unprepared floor or use surface, which was recessed slightly below the level of the ground surface. Judging from the quantity of river cobbles which lie about on the surface and fill the recessed floor space, the walls must have been free-standing and composed of rock set in a thick mortar of adobe clay. Although no traces of adobe were found, the smooth and rounded shape of the cobbles would require a mud mortar to hold them in place. The number of rocks indicates that most of the wall was masonry. No door or other wall openings could be defined, but a large, well shaped slab cover, found just to the east of the structure, may have served as a cover for a doorway. No definite traces of floor were found, but a bottom was postulated from the depth of the room fill, the fallen wall cobbles, and the occurrence of a Rosa Gray vessel base. Roofing was probably of beams

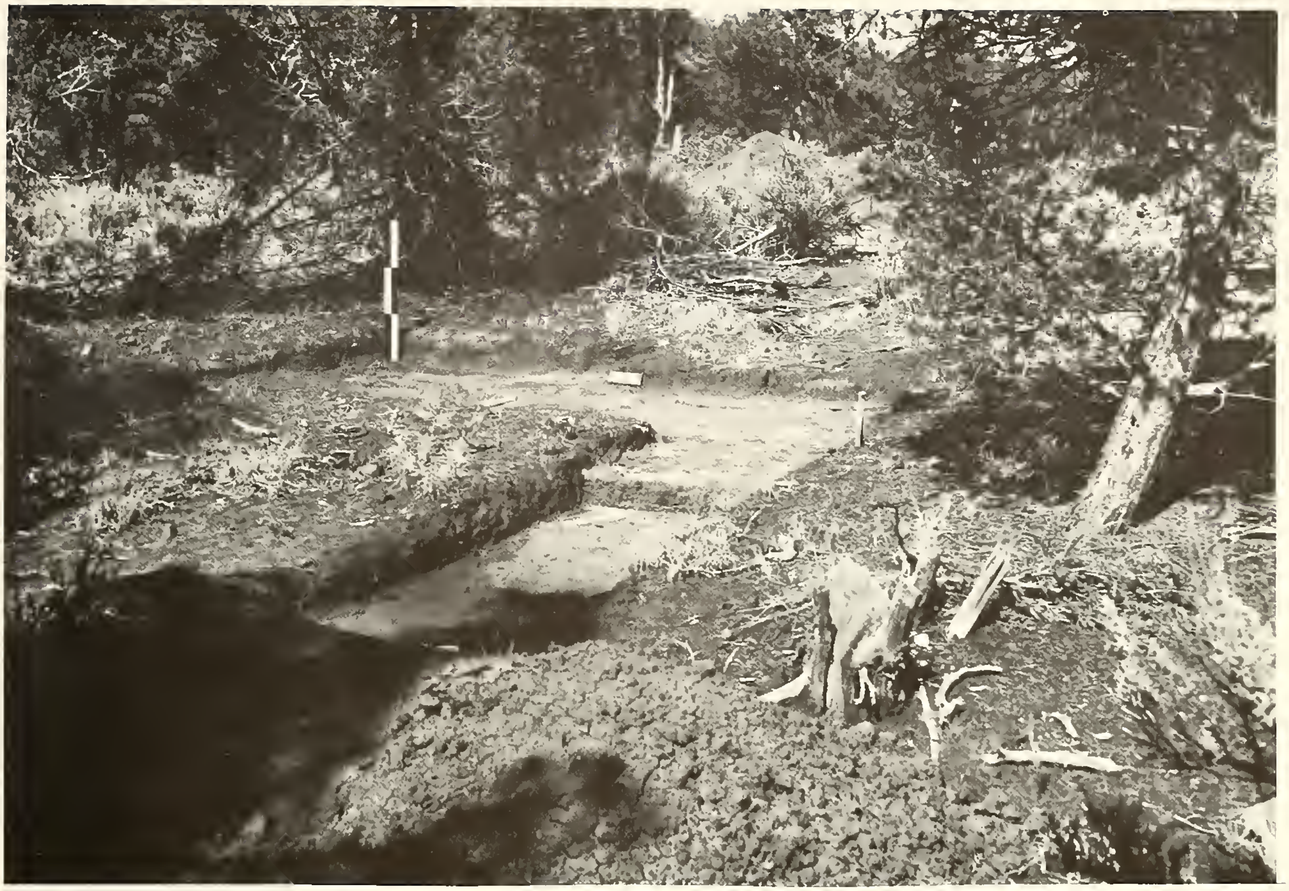

Fig. 7. Refuse area showing L-shaped test trench, Candelaria Site.

having a mud covering, but no evidence exists to support this supposition. The complete lack of floor features or of a prepared floor surface indicates that the structure was used as a storage unit and not as a permanent residence.

REFUSE AREA

A deposit of shallow, sheet refuse, 0.8 feet thick to the south and downslope from the architectural units, has irregular, indefinite limits. No attempt was made to map this feature on the site plan. An L-shaped trench was excavated into the refuse to provide knowledge of its contents: a dark gray silty-clay, stained by ash and disintegrated organic remains. Discovered within the deposit were pot sherds, and waste knapping debris.

ARTIFACTS AND NON-ARTIFACTS

The same basic procedures were followed in the analysis of portable, material culture as in the Reservoir Survey (Dittert, et al, 1961, Chap. IV). Although the total number of artifacts is small, their description and analysis is important because the site is a one-component, Single Unit of occupation, dating from early in the Piedra Phase. Therefore, inhabitants were probably few, and the range of individual variation in producing craft items is limited. The types described can be considered part of the Piedra Phase trait list.

A number of clay and stone artifacts, assumed to be ceremonial in nature, include: pipes, both the clay, cloud-blower style and an elbow form; a feather box; tiponi; shaped calcite; and concretions. Eight of the nine objects were found directly on the floor, and, therefore, were undoubtedly in use by the occupants at the time the house was destroyed. Religious, as well as domestic, use of the house is indicated. Materials for making prayer-sticks were probably kept in the feather box; the calcite polygons could have been part of a medicine bundle;pipes are used today in rain-making ceremonies; the tiponi, or corn-goddess symbol, has well-documented crop fertility associations; and odd items, such as concretions, are today used as part of a medicine kit.

Most of the other clay, stone, bone, and textile artifacts had a utilitarian use for food production, shelter, and the making of other artifacts.

Non-artifacts are meagerly represented, and only the mammal bones have been identified. Several animal species are represented, all prevalent today, except a large sheep (?). Soil and pollen samples await further study.

Ceramic Types

Analysis of ceramics was by the established type concept. Individual pottery types from the Navajo Reservoir District are either referenced or described in the Survey Report (Dittert, et al, 1961, pp. 135-156). However, in several instances, provisional, type names are employed here, to be described in a report on Sambrito Village, now under study, which will deal with a large sample of pottery (Dittert, et al, 1963b). Sherd counts by ceramic types and feature location, are given in Table 2. Similar information, for whole and restorable artifacts, is given in Table 3.

TABLE 2

OCCURRENCE OF CERAMIC TYPES BY PROVENIENCE, CANDELARIA SITE (in per cent)

	CERAMIC TYPES*	LOCUS						TOTAL SHERDS	PER CENT
		Pit House			Surface Structure	Refuse	Surface		
		Fill	Roof Fall	Floor					
LOCAL	Rosa Gray	8.34	31.56	20.18	2.88	11.68	2.28	507	76.92
	Rosa Neckbanded	2.43	7.13	3.79	0.30	0.60	0.15	95	14.40
	Rosa B/W	-	0.15	-	-	0.30	-	3	0.45
	Piedra Brown(tent)	0.15	1.37	-	-	0.15	-	11	1.67
	Piedra B/W	0.61	0.91	0.30	0.15	1.82	0.46	28	4.25
	Arboles B/W	0.15	0.15	-	0.15	-	-	3	0.45
TRADE	Chapin Gray	-	0.76	-	-	-	-	5	0.76
	Bluff B/R	0.15	0.91	-	-	-	-	7	1.06
	TOTAL SHERDS	78	283	160	23	96	19	659	—
	PER CENT	11.83	42.94	24.27	3.48	14.55	2.89	—	99.96

* Excluding whole pottery vessels

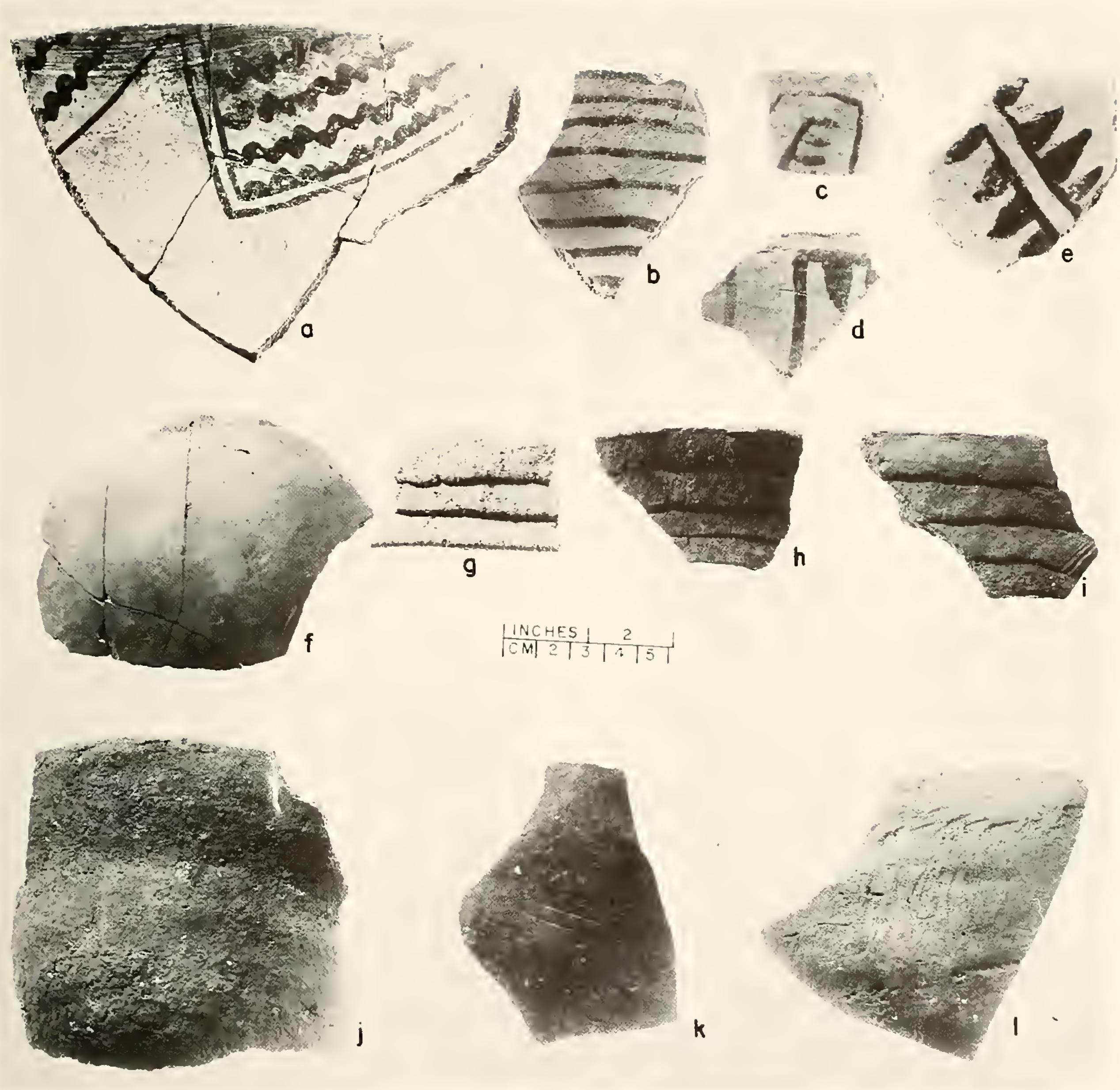

Fig. 8. Representative sherds of ceramic types present at the Candelaria Site. a, Arboles Black-on-White; b-d, Piedra Black-on-White; e, Rosa Black-on-White; f, Bluff Black-on-Red; g-i, Rosa Neckbanded; j-l, Rosa Gray.

A collection of 659 sherds was gathered from three, excavated features, and a small surface collection was made during excavation. Of these, the greatest bulk (98.14%) is local; the paucity (1.82%) of trade wares indicates little, outside contact or exchange of goods and ideas. The local types are broken down, as follows: plain ware, 78.59 per cent; textured or neckbanded, 14.40 per cent; and painted, 5.15 per cent.

Plain sherds are sub-divided into Rosa Gray, used as a catchall category in this report; and Piedra Brown, a provisional type. One miniature, necked jar of Rosa Brown was also found. Dittert is presently breaking down the plain wares found within the Reservoir in the laboratory, and he is considering the designation of a second, provisional type, Piedra Gray. This category is tentatively separated from Rosa Gray on the basis of ceramic attributes found in the upper Reservoir District, including the surface polishing, the use of crushed rock, and, particularly, crushed andesite for temper. A sample count on seventy-one plain gray sherds from the roof fall of the pit house, indicated that 42.25 per cent of them consisted partially of crushed rock, and 57.75 per cent of predominantly rolled quartz sand temper. However, all sherds have some of both types. Based on Dittert's sorting, the crushed rock tempered gray ware would be Piedra Gray, a corollary of other Piedra Phase ceramic types.

Neckbanded sherds have been classified as both Rosa variety, and a Kana-a variety (Dittert, et al, 1961, p. 147). Because of the limited number of Kana-a style, (1.06%), they have been lumped together in Table 2. A detail check of the above sherd lot revealed that thirty-three sherds (30.31%) contained crushed rock, predominantly andesite, and 69.69 per cent were tempered with rolled quartz sand. Both groupings had some of both types of temper.

Painted ceramics are indicative of the Rosa, Piedra, and Arboles Phases. Of these, Piedra Black-on-White predominates (4.24%); and Rosa and Arboles Black-on-White make up less than one-half per cent apiece (0.45%) of the total sherd samples (Fig. 8). The Piedra type has two sub-groupings, characterized by the type of paint used: a glaze paint group, similar to the Rosa Black-on-White glaze paint, and a non-glaze, mineral paint group. However, the glaze paint sherds make up a very small portion (0.45%) of the total sample. Two Piedra glaze painted sherds from the trash test, also have exterior basket impressions. Painted designs were so scarce that little can be said about the art work.

Trade pottery consists of two types: Chapin Gray and Bluff Black-on-Red. Both are derived from the Mesa Verde District, northwest of the Reservoir. Chapin Gray is distinct from other plain gray wares because of exclusive use of crushed rock temper, predominantly andesite, a light surface color, and very light gray paste. Bluff is distinctive from other San Juan Red Wares because of the absence of specular, iron hematite paint and lack of a red slip. As stated previously, both types are present in insignificant quantities.

The predominance of diagnostic Piedra Black-on-White over other painted wares is the chief basis for defining the site as Piedra Phase. The relatively high percentage of neckbanded sherds in the total sample, and the dominance of Rosa Gray over provisional Piedra Gray in the check sample indicate occupation early in the Piedra Phase. It is assumed that the frequency of neckbanded pottery declined in the Piedra Phase, transition eventually being made to other types of textured wares, such as Payan and Mancos Corrugated (Chap. IV and V).

The ceramic type for the pipes and the feather box is not ascertainable because their paste, temper, and general appearance do not fit any of the established types. The ceramic technology of many ceremonial objects differs from that of everyday wares, and tends to survive longer, a conservatism characteristic of ceremonial life. The feather box and pipes are polished brown wares, or a combination of oxidized and reduced firing; extra care was given to polishing. These traits may represent a persistence in the Piedra Phase of very early Brown Ware technology, first established in the Los Pinos Phase (Eddy, 1961, pp. 64-65).

Clay Artifacts

Description of vessel shapes follows Colton and Hargrave (1937, Fig. 2), and Gifford (1956). The description of pipes was aided by the work of Kidder (1932), and the plug is compared to the much larger sample of Roberts (1930).

NECKED JARS (3)

Restoration of sherds found on the pit house floor yielded two plain ware, pottery jars having extended or necked openings. They differ in size, shape, and ceramic type. One large jar has most of the body and the whole base missing, but the neck and a portion of the side wall, extending down toward the base, were recovered. Attributes of the paste, temper, method of construction, and firing are Rosa Gray. The shape of the vessel body is globular, a compressed neck and a strap handle being attached to the body and lip of the orifice. Rim shape is IB4 (Colton and Hargrave, 1937, Fig. 2); straight side wall, slight outward flare to lip, and a flat to slightly rounded rim. There are no shoulders, and the side walls make a smooth curve to meet a rounded base. Size: body diameter, 4.0 inches; depth, 3.5 inches; wall thickness, 0.1 inch (Fig. 9a).

A miniature, Rosa Brown, necked jar has the following attributes: a compressed neck; cylindrical body with sharp shoulders, high on the walls; a side wall profile varying from incurved to recurved; and a flat bottom. Rim shape is IB2, or straight-walled; lip curved outward, and rim tapered. The rim and shoulders were formed by pinching the clay between thumb and fingers and drawing it out from the vessel body, producing a thinned rim and a sharp shoulder. The rough appearance of this vessel and its miniature size suggest that it was either a ceremonial item, a child's toy, or both. Size: body diameter, 1.3 inches; depth, 0.5 inch; wall thickness, 0.1 inch (Fig. 9c).

In addition to the two fairly complete vessels described above, a third fragmentary jar from the general fill of the pit house is also necked, breaks existing on both the orifice and the bottom of the globular body. By projecting the curved side walls, it may be inferred that the base was originally rounded. The rim is entirely missing, and it is not known whether the jar neck was extended or

TABLE 3

OCCURRENCE OF CLAY ARTIFACTS BY PROVENIENCE, CANDELARIA SITE

ARTIFACTS	LOCUS					TOTAL
	Pit House			Refuse	Surface	
	Fill	Roof Fall	Floor			
Necked Jars	-	1	2	-	-	3
Feather Box	-	-	1	-	-	1
Cloud Blower Pipes	-	-	2	-	-	2
Lugs	-	2	-	-	1	3
Handles	-	-	-	1	1	2
Discs						
Whorl	1	-	-	-	-	1
Unperf.	-	1	-	-	-	1
Plug	-	-	1	-	-	1
TOTAL	1	4	6	1	2	14

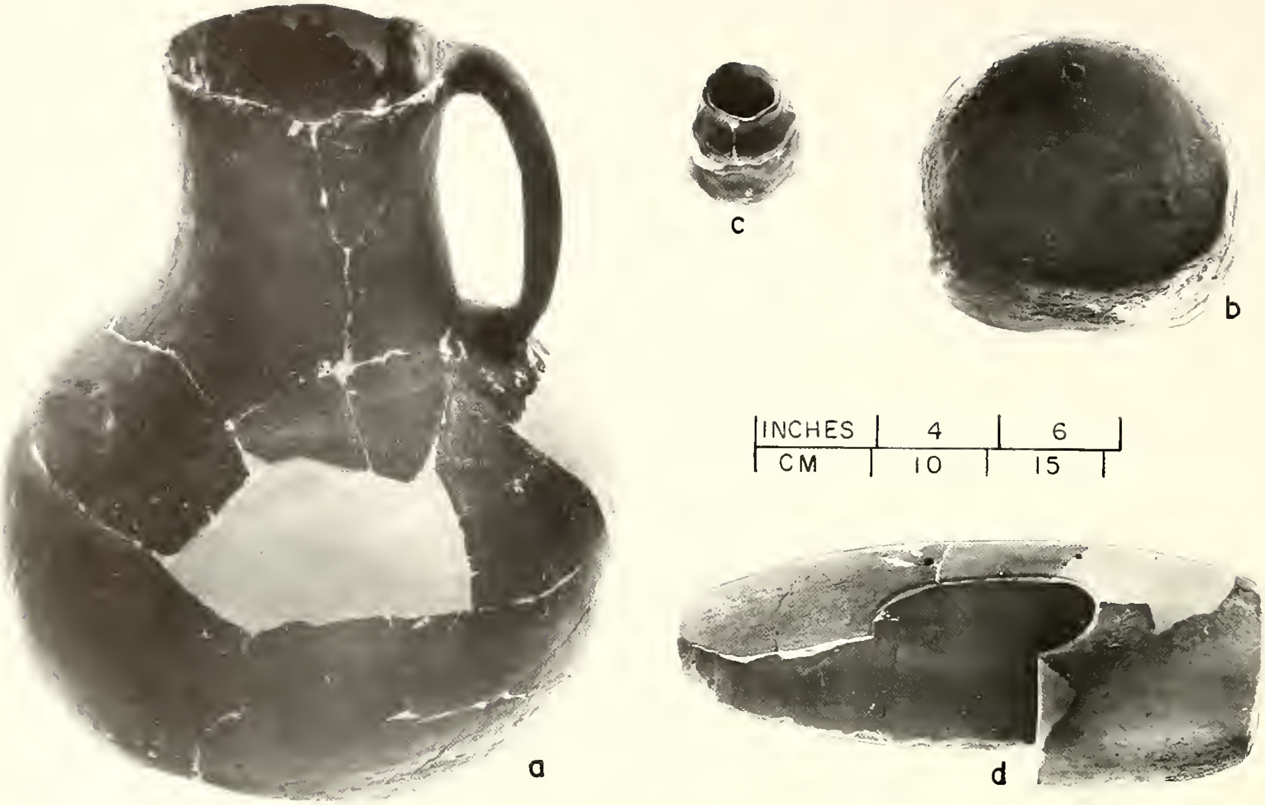

Fig. 9. Necked jars and feather box, Candelaria Site. a, Rosa Gray necked jar; c, miniature Rosa Brown necked jar; d, oblique view of feather box; b, end view of feather box, showing perforated hole.

compressed. The base of the neck, barely present, indicates that the neck wall was beginning to flare out again. Whether this would make an outflaring neck, or even a double bulbous shape, such as Roberts (1930, plate 33) depicts, is not determinable. Size: body diameter, 2.5-2.6 inches; wall thickness, 0.2-0.3 inches.

FEATHER BOX (1)

The feather box is a broken, long, cylindrical container having closed ends and a single oval opening in the wall. The side opposite the opening is slightly flattened and worn, forming a base on which the cylinder normally rests. Shape of the oval rim is I A7. In plan view, the cylinder has square ends and slightly outcurved sides; in cross-section, it is oval to nearly circular. The clay paste varies from brown to gray, and the surface follows this color scheme. Around the opening, the color is brown, gray being dominant on the sides and on the flattish bottom. Unfired, red hematite, smeared on the surface, is caught in rough spots around the opening. Temper is rolled sand, some fine flecks of andesite being present.

The cylinder is built up by coiling; several nearly obliterated coils show on the interior surface, which has been smoothed but not polished. The exterior surface has been completely polished, and prominent polishing marks run in many different directions. Three small, round, holes, arranged in a symmetrical pattern around the remaining portion of the opening suggest that a fourth hole may have been present. Another, small hole on one end of the cylinder is slightly larger than the top three (Fig. 9b). Size: length, overall, 9.5 inches; opening, 3.5 inches; width, overall, 4.3 inches; opening, 1.5 inches; thickness, overall, 3.3 inches; wall, 0.2-0.3 inch (Fig. 9b, d).

The specimen is similar in shape to prehistoric feather boxes found in Cave du Pont, Kane County, Utah (Nusbaum, 1922, p. 117); at Stollsteimer Mesa on the Piedra River north of the Reservoir (Roberts, 1930, p. 105); and in the La Plata drainage (Morris, 1939, pp. 166-167). Morris summarizes occurrences in the San Juan Basin and mentions unreported specimens of the Basket Maker III Period which contained feathers, bird skins, and gaming outfits when found. Feather boxes are found at Basket Maker II through Pueblo I period sites. The Basket Maker examples occur in rock shelters, and are carved from wood. The Pueblo I examples are all from exposed sites, and have survived only because they are fashioned from fired pottery.

For the historic period, information on these boxes is given by Bloom (1937, p. 74), Parson (1932, p. 104), and Mindeleff (1891, p. 210). One from San Juan Pueblo, is in the collections of the Laboratory of Anthropology. The geographic distribution includes most of the Rio Grande Pueblos and Zuni. However, Parsons states that feather boxes were not used at Jemez Pueblo.

All investigators report the use of these boxes as containers to hold ceremonial gear such as prayer plumes and other items utilized by the present day Pueblo Indians. These records provide the necessary analogy to reconstruct the appearance and use of the prehistoric feather box described here.

The three (and postulated fourth) holes in the upper surface of this feather box may have served to fasten a lid as in modern boxes, or for loop fiber handles and the single end hole may have been used to attach a thong handle for carrying, as in the San Juan feather box mentioned above. Some of the ceremonial gear to be described, such as the clay and stone pipes, shaped calcite, and concretions, may have been kept in the feather box when not in use.

CLOUD BLOWER PIPES (2)

The cloud blower style pipe, conical in shape and made of fired clay, is perforated longitudinally forming two interior sections. A large bowl compartment is present within the big end of the clay cone and is suitable to hold the material to be smoked. This is connected to the opposite mouthpiece end of the cone by a small cylindrical perforation; the stem hole. The pipes were probably constructed by modeling.

One specimen, mottled brown and gray, is smoothly finished and polished on the exterior, polishing marks running the long way of the pipe; the bowl rim is evenly finished (Fig. 10b). The second specimen is short and stubby, the mouth piece tapering to a point. It is fired to a gray color, and both the surface and the uneven bowl rim are very roughly finished. One small area of the exterior shows rudimentary polishing (Fig. 10a). Size: length, 1.5 and 2.7 inches; diameter, exterior, 0.3 and 1.1 inches; bowl, 0.5 and 0.7 inch; stem, 0.05 and 0.1 inch; bowl depth, 0.7 and 1.8 inches; weight, 0.5 and 1.3 ounces.

LUGS (3)

Lugs are projections from pottery containers, made by attaching a rounded, tapering wad of clay to a vessel wall. One is a large lug, which was riveted to a sherd by passing the clay through the wall of the vessel and flanging it on the interior. Flanging has left a perceptible rise on the interior vessel wall. The other two lugs are simply pinches of clay, stuck onto the exterior of a jar, just below the banded neck. The clay projection is applique, and does not pass through the wall. Lugs were used to hold the container, or to secure it for suspension or transport. Size: diameter, maximum at vessel wall, 0.3-1.2 inches; minimum at tip, 0.2-0.8 inch; length, 0.3-1.5 inches (Fig. 10c-e).

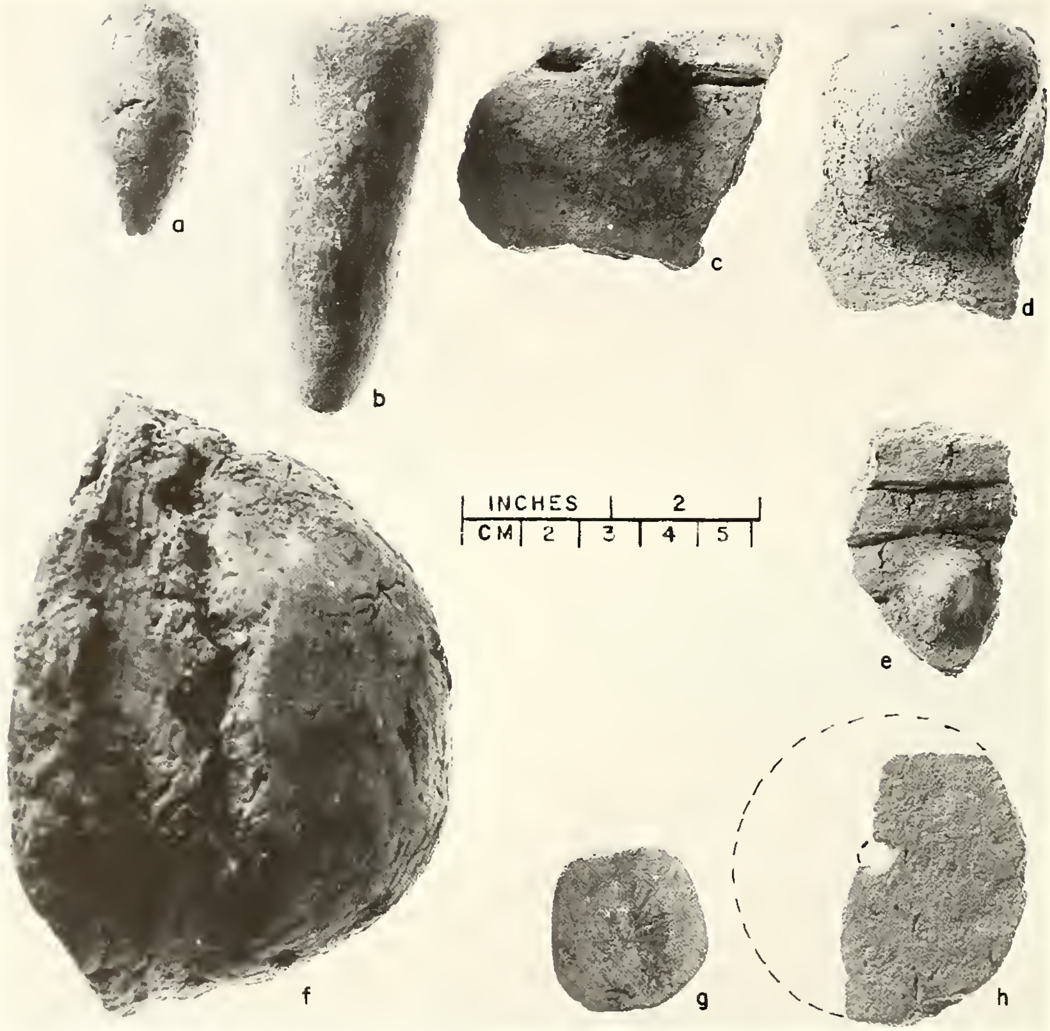

Fig. 10. Clay pipes, lugs, plug, and discs, Candelaria Site. a-b, clay pipes; c-e, lugs; f, plug, showing side view; g, solid disc; h, whorl.

HANDLES (2)

Two cylindrically-shaped coils of clay, fragments from ceramic jars, are circular in cross-section, and curved along their length. One specimen is from a Rosa Gray vessel, and appears to have come from the mid-section of a handle. Sand temper protrudes on the surface, and no attempt was made to smooth or polish it. The other specimen is broken somewhere near the point of attachment to the vessel. One end is solid and symmetrical, but the end of attachment is hollow and starts to flare outward. The undersurface, facing the vessel, is rough, but the outer side is smoothed, polished, and painted with two parallel lines of black mineral paint. This sherd came from a Piedra Black-on-White jar. Size: diameter, 0.7-1.0 inch.

DISCS (2)

Two disc specimens are made from broken sherds of fired vessels. One is of polished plain gray ware, fashioned into a sub-rectangular shape. The edges are ground smooth, many grinding striations existing around the disc edges. The faces of the disc are also marked with many striations around the disc edges, in no consistent pattern. Size: diameter, 1.0 inch; thickness, 0.2 inch (Fig. 10g).

TABLE 4

USE OF LITHIC MATERIAL BY ARTIFACT FORM, CANDELARIA SITE

LITHIC MATERIAL	STONE TOOLS																			TOTAL
	Proj. Point	Knives	Axes	Scrapers	Gravers	Cores	Choppers	Abraders	Hammers	Manos	Metates	Mortars	Floor Polishers	Ground Pebble	Tiponi	Slab Covers	Shaped Calcite	Elbow Pipe	Concretions	
Quartzite	-	-	1	5	2	13	4	1	6	-	-	-	-	1	-	-	-	-	-	33
Quartzitic ss	-	-	-	-	-	-	-	-	-	3	2	-	1	-	-	-	-	-	-	6
Jasper	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Chert	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Agate	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	2
Petrified Wood	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Igneous	-	-	1	-	-	-	2	-	9	-	-	-	2	-	-	-	-	-	-	14
Obsidian	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Dolomite-limestone	-	-	-	2	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	4
Sandstone	-	-	-	-	-	-	-	-	-	-	4	2	-	-	1	7	-	1	-	15
Calcite	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	-	2
TOTAL	1	4	2	7	3	13	7	2	15	3	6	2	3	1	1	7	2	1	2	82

The second disc is a whorl fragment. It is made from a refired plain ware, orange in color. The disc edge is irregularly flaked, but not ground smooth. A central, bi-conical hole is drilled through from both faces. This whorl may have been used as a fly wheel on a spindle or drill shaft. Size: diameter, 1.9 inches; thickness, 0.2 inch; diameter of central hole, 0.2 inch (Fig. 10h).

PLUG (1)

An unfired piece of light brown clay, which appears to have been used to plug pottery or a basket-shaped jar, is made of two pieces of mud, pressed together; the junction of the two is marked by an indentation running around the specimen. The entire piece is roughly spherical, having one outflaring flat side, which is actually a reverse cast of the human palm, and was probably made as the rounded bottom was pressed into a jar mouth. Identical specimens, obtained by Roberts (1930, pl. 38) from ruins on Stollsteimer Mesa north of the Reservoir, have impressions of corn and basketry, made as the still wet clay was pressed into a container and its contents. Size: length, 3.8 inches; width, 3.0 inches; thickness, 2.6 inches (Fig. 10f).

Stone Artifacts

Eighty-two artifacts of stone were excavated or collected on the surface. Of these, 74.4 per cent were taken from the pit house. These are described in eighteen interpretive categories, and, in some instances, are sub-divided into smaller groupings. Descriptions are based on formal attributes, including telegraphic listing of the maximum and minimum size range. Interpretations follow the description. Table 6 presents the occurrence of individual tools by provenience. Further details of some of these tool forms are included in Dittert, et al, (1961, p. 157).

As excavation proceeded, miscellaneous sherds and lithic debris were sacked in bag lots for laboratory study, and, later, were examined in detail for small, easily overlooked artifacts.

Stone identifications were made to determine the preference of materials. Table 4 lists the use of lithic material by artifact form, and Table 5, the occurrence by locus. Of 248 pieces of flaked and chipped lithic material, only 24.19 per cent showed indications of use; the remainder had simply been struck from cores and discarded as unsuitable. The most commonly utilized stone was quartzite, representing 65.73 per cent of the sample collected. Stone minerals making up more than one per cent are, in order of predominance: chert, igneous, quartzitic sandstone, and limestone-dolomite. The percentage of chert is large because twenty-two pieces of Pedernal

TABLE 5

OCCURRENCE OF LITHIC MATERIALS BY PROVENIENCE, CANDELARIA SITE

LITHIC MATERIALS	LOCUS								TOTAL	PER CENT
	Pit House		Surface Structure		Refuse		Surface			
	Unused	Used	Unused	Used	Unused	Used	Unused	Used		
Quartzite	48	20	7	2	66	13	5	3	163	65.73
Quartzitic ss	7	2	2	-	5	-	-	-	16	6.45
Jasper	I	-	-	-	-	1	-	-	2	0.81
Chert	27	2	2	1	1	-	-	-	33	13.31
Chalcedony	1	-	-	-	-	-	-	-	1	0.40
Igneous	4	6	2	0	2	3	-	-	17	6.85
Sandstone	1	-	-	-	1	-	-	-	2	0.81
Calcite	2	1	-	-	-	-	-	-	3	1.21
Reddle	1	-	-	-	-	-	-	-	1	0.40
Concretion	1	-	-	-	-	-	-	-	1	0.40
Obsidian	-	-	-	-	-	1	-	-	1	0.40
Dolomite-limestone	-	-	-	-	3	4	-	-	7	2.82
Petrified Wood	-	-	-	-	-	-	-	1	1	0.40
TOTAL	92	31	13	3	78	22	5	4	248	—
PER CENT	37.10	12.50	5.24	1.21	31.45	8.87	2.01	1.60	—	99.99

were found in one concentration in the roof fall of the pit house. Stone-knapping apparently took place at this spot, and all specimens are likely from the same core.

Most stone materials are readily obtainable from the surrounding countryside. Some sandstone outcrops are found in the Arboles Land Form and, more commonly, to the south, in the canyon and mesa country of the Junction Land Form. Quartzites and fine grain silicate occur in numbers in the Pleistocene gravel that caps the river terrace benches of the area. Three types of stone appear to be foreign to the area: obsidian, Pedernal chert, and the lumped category of limestone-dolomite. Of twenty-seven stones identified as chert, twenty-four are Pedernal, derived by trade from near Abiquiu in the Chama Valley of New Mexico, southeast of the Navajo Reservoir District.

Obsidian could have been obtained from areas of former volcanic activities, such as the Jemez and Mt. Taylor regions of New Mexico, or from terrace gravels washed out of the San Juan Mountains. One such gravel deposit occurs in the Animas Valley north of Durango, Colorado. However, no obsidians have ever been observed in the terrace gravels of the Piedra or other rivers flowing into the Reservoir District. The source of the limestone-dolomite is not known, although outcrops may exist within the San Juan Basin because at times its basin sediments were deposited under marine conditions (Dittert, _et al_, 1961, pp. 16-23).

PROJECTILE POINT (1)

A single, broken, Side-Notch, Broad Spur projectile point, classified by the form characteristics described in the Reservoir report (Dittert, _et al_, 1961, p. 171) is fashioned from a triangular-shaped blank having convex sides and a concave base. Large side notches, about one-fifth of the way above the base, produce a broad spur. The blade tangs are rounded, and the one remaining spur point is slightly sharp because of the incurving base. Size: length, 1.9 inches; width, 0.8 inch; thickness, 0.2 inch; weight, 74.07 grains (Fig. 11a).

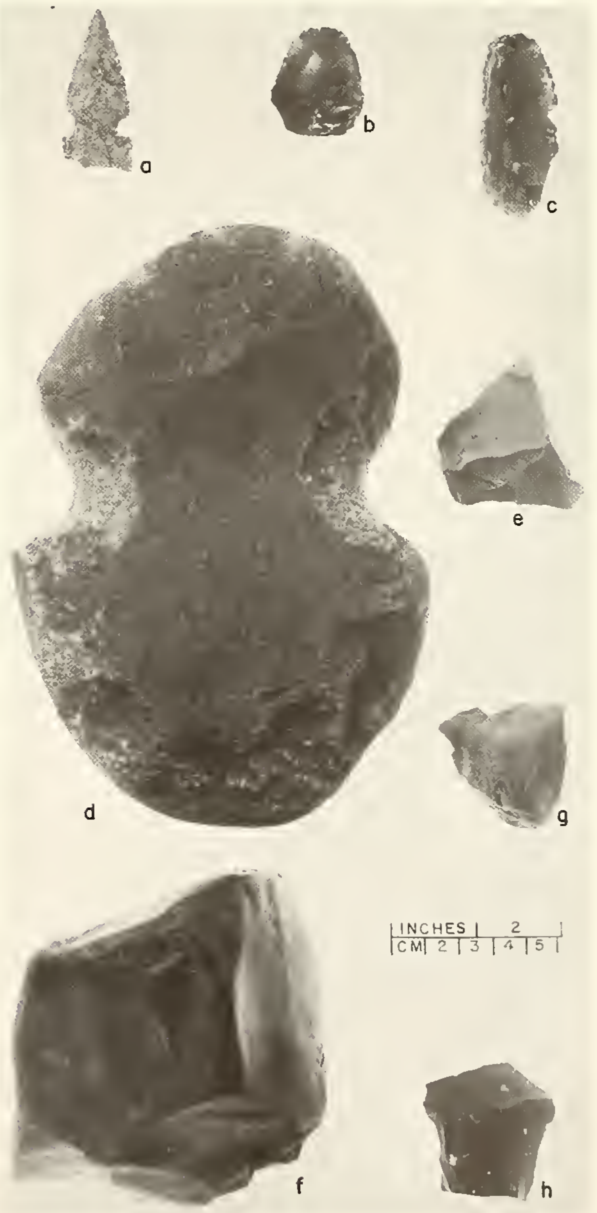

Fig. 11. Projectile point, knives, axe, graver, and scrapers, Candelaria Site. a, projectile point; b, intentionally chipped knife; c, elongate flake knife; d, axe; e, graver; f, end scraper; g, side scraper; h, ground edge scraper.

TABLE 6

OCCURRENCE OF STONE TOOLS BY PROVENIENCE, CANDELARIA SITE

TOOL TYPE	LOCUS						TOTAL
	Pit House			Surface Structure	Refuse	Surface	
	Fill	Roof Fall	Floor				
Proj. Point	1	-	-	-	-	-	1
Knives	-	1	-	1	2	-	4
Axes	-	-	1	-	1	-	2
Scrapers							
Side	1	3	-	-	-	1	5
Ground Edge	-	-	1	-	1	-	2
Gravers	-	2	-	-	-	1	3
Cores							
Spherical	2	2	-	-	2	-	6
Edged	2	1	2	1	1	-	7
Choppers	-	-	2	1	4	-	7
Abraders	1	-	-	-	1	-	2
Hammers							
Pebble	-	1	-	-	-	-	1
Spherical	1	3	1	-	1	-	6
Edged	-	3	4	-	1	-	8
Manos							
One-hand	-	-	1	-	-	-	1
Two-hand	-	-	1	-	-	1	2
Metates	3	-	3	-	-	-	6
Mortars	2	-	-	-	-	-	2
Floor Polishers	1	-	2	-	-	-	3
Ground Pebble	-	1	-	-	-	-	1
Tiponi	-	-	1	-	-	-	1
Slab Covers	3	1	2	-	-	1	7
Shaped Calcite	1	-	1	-	-	-	2
Elbow Pipe	-	-	1	-	-	-	1
Concretions	-	-	2	-	-	-	2
TOTAL	18	18	25	3	14	4	82

KNIVES (4)

Thin, oval and irregularly shaped flake knives have bifacially chipped cutting edges. These are classified by the methods of the Reservoir survey report to include all the forms described (Dittert, et al, 1961, p. 175). One example is intentionally chipped along two sides of a tear-drop shaped flake (Fig. 11b); two show use chips on irregularly shaped flakes. The fourth matches the attributes of Elongate knives, and is intentionally chipped along most of the edges of an oval flake (Fig. 11c). Size: length, 1.2-2.1 inches; width, 0.9-1.1 inches; thickness, 0.2-0.5 inch; weight, 55.6-205.3 grains; angle of cutting edge, 20-45 degrees.

AXES (2)

Two axe heads, one complete and one fragmentary, were recovered. Both are oval-shaped, flat river cobbles, flaked to produce side notches. The fragment also has a poll notch. Some of the notches are pecked and ground smooth. Neither has any modification of the flat faces, but the complete axe has edge-pecking, outside the area of the notches. Only the complete specimen shows the method of fashioning a bit by a slight amount of unifacial flaking. Little use on resistant materials is indicated by the minimal wear marks on this tool. Size of complete specimen: length, 6.9 inches; width, 4.7 inches; thickness, 1.4 inches; weight, 38.2 ounces.

SCRAPERS (7)

All seven scraper specimens except one are flakes. The exception is a cobble core, which has unifacial chips removed. Some of these chips have been removed intentionally, but the majority appear to have been removed through actual use. All are irregular in shape. Classification follows that of Dittert, et al, (1961, p. 178), and is based on the position of the worked area in relation to the axis of the tool flake.

Two end scrapers have ground and polished edges. One of these, made from a large, oval-shaped river cobble, was flaked unifacially on the end to produce a sharpened scraped edge. An area of ground and polished finish, which has short striations, also runs across this scraping edge. This heavy tool must have been used on semi-resistant material, such as wood, as well as on more pliable materials, such as hides and skins. Size: length, 4.1 inches; width, 3.5 inches; thickness, 3.3 inches; weight, 1568 grains; angle of scraping edge, 78 degrees (Fig. 11f).

A second end scraper is an irregularly shaped, random flake which has a ground edge; use chips have been removed along one side. Under a hand lens, striations can also be observed running at right angles to the use ground edge. Size: length, 1.7 inches; width, 1.5 inches; thickness, 0.5 inch; length of ground edge, 0.9 inch; weight, 0.81 ounce; angle of ground edge, 107 degrees (Fig. 11h).

The remaining five scrapers are all irregular flakes; use chips have been driven off their sides. One specimen also has chipping along two converging sides to produce a pointed scraper. Size: length, 1.5-2.1 inches; width, 1.5-1.6 inches; thickness, 0.6-1.1 inches; weight, 293-2648.1 grains; angle of scraping edge, 40-45 degrees (Fig. 11g).

GRAVERS (3)

Gravers are fashioned from random, irregular flakes having sharp corners, which are further accentuated by chipping, both along the point itself, and sometimes along part of one edge leading up to the point. Occasionally, a use chip has been sheared off the upper face of the point spine. All three examples have narrow pointed tips, and match the Pointed Graver form described for the Reservoir collection (Dittert, et al, 1961, p. 181). Size: length, overall, 0.9-4.3 inches; tip, 0.1-0.2 inch; width, overall, 0.9-3.2 inches; tip, 0.1-0.2 inch; thickness, overall, 0.2-0.7 inch; tip, 0.1-0.2 inch; weight, 0.1-4.2 ounces; tip angle, 52-66 degrees (Fig. 11e).

CORES (13)

Cores are the discarded end product of stone flaking. All thirteen examples were originally collected from the local, Pleistocene terrace gravels, and show some portion of a weathered, river-smoothed, surface. Two sub-categories, Edge-flaked (Fig. 12a) and Spherical-shaped (Fig. 12b), are present. Those in the Edge sub-type have been flaked around part of the perimeter of a flat-oval cobble, and show no further modification of the faces. The Spherical cores have been flaked over most of the cobble surface to produce a roundish form. One specimen shows a striking platform from which other flakes have been struck. This specimen is unique in the sample of cores obtained at this site, as well as in the much larger surface collection from the entire Reservoir (Dittert, et al, 1961, p. 186). Many of the hammers, choppers, and large scrapers may, also, be cores, secondarily utilized for other purposes. Size: length, 1.5-5.6 inches; width, 1.4-3.5 inches; thickness, 0.9-2.8 inches; weight, 1.1-38.2 ounces.

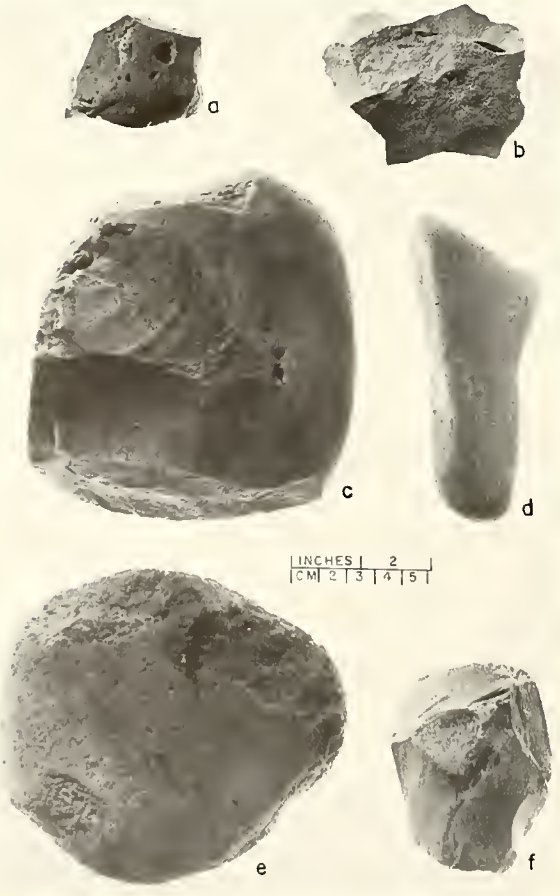

Fig. 12. Cores, choppers, and hammers, Candelaria Site. a, edged core; b, spherical core; c, chopper; d, pebble hammer; e, edged hammer; f, spherical hammer.

CHOPPERS (7)

Choppers are either made from flat, oval river cobbles, or, occasionally, large primary flakes. Both the faces and edges have been flaked leaving unifacial, bifacial, and multifacial scars. The sharpened intersection of these scars shows short, linear, "wing" fractures, indicating a chopping and cleaving use. Flaking covers from one-quarter to three-fourths of the cobble surface; the remaining, smooth, unmodified area would make a hand-hold for the user. Size: length, 2.5-4.9 inches; width, 1.8-4.4 inches; thickness, 1.7-3.1 inches (Fig. 12c).

EDGE ABRADER (2)

The two edge abraders recovered, a river cobble and a flake, each have a ground and polished edge. The river cobble has been flaked over nearly all of its surface; and the sharpened edges, produced by the intersection of the flake scars, have been used for multiple purposes, including hammering, chopping, and cutting. The cutting edge, of principal interest, consists of a narrow, ground and polished edge, which, when viewed under a 10X hand lens, reveals a whole series of short, parallel-trending striations down its axis. It is inferred that this edge was used to cut, with a filing motion. The material being filed was hard enough to smooth and incise the tool material. Size: length, 3.5 inches; width, 3.0 inches; thickness, 2.2 inches; length of use edge, 1.7 inches; weight, 13.2 ounces; angle of ground edge, 110 degrees.

The other ground-edge tool, made from an irregular, random flake, was also used on an edge at the intersection of two flake scars, and exhibits the grinding characteristics described above. Size: length, 2.0 inches; width, 2.1 inches; thickness, 0.7 inch; length of ground edge, 1.25 inches; weight, 1.78 ounces; angle of ground edge, 145 degrees.

HAMMERS (15)

The general description and subtypes of this implement are identical with those described for the Reservoir (Dittert, et al, 1961, p. 182). Of the three sub-types (Spherical, Edged, and Pebble), the Edged form is the most common, and is composed entirely of water-rounded cobble cores, flaked unifacially along one edge, and, occasionally, on one side of the ends. Use is indicated by battering, along the sharpened edge, formed by the intersection of the flake scar and the unmodified cortex of the core (Fig. 12e).

Spherical hammers, next most common, are rounded rocks, flaked, over most of (occasionally, all of) the surface, producing a roughly spherical shape. Sharp edges and points are formed from the intersection of the various flake scars, and show battered use (Fig. 12f). One small, elongate pebble shows no flaking modification, but has three areas of battered wear (Fig. 12d). Size: length, 2.8-5.2 inches; width, 1.9-4.9 inches; thickness, 0.9-2.9 inches; weight, 5.9-53.2 ounces.

MANOS (3)

Three specimens of manos, differing in form and degree of use, are each comparable to examples described for the Reservoir (Dittert, et al, 1961, p. 188). One, classified as a One-Hand, Shaped form, is bifacial, having a bi-convex cross-section. The grinding faces are convex in the longitudinal axis, predominantly flat in the lateral axis, and oval, with flattened ends in plan. The sides and one end have been ground. The shape of this mano would lend itself to use on either a slab or trough metate; since only trough types were found, probably, it was paired with one of these (Fig. 13b).

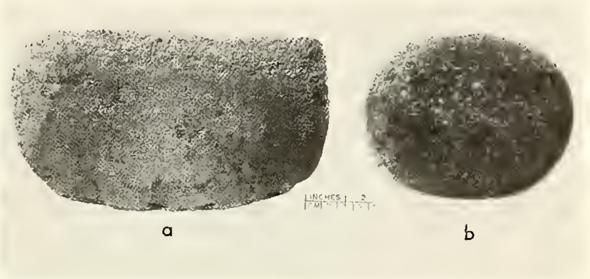

Fig. 13. Manos, Candelaria Site. a, two-hand; b, one-hand.

The remaining specimens are Two-Hand, Trough forms, which show marked differences in the degree of wear. One is an incipient mano, made from an unmodified river cobble which is naturally flat, and oval-shaped in outline, unpecked and slightly used. It might have been completely overlooked, if it had not been in the grinding area of an Open-End, Trough metate.

A second specimen, showing advanced wear, probably had been discarded. The two grinding faces are convex in the longitudinal axis, and mostly flat, laterally; one face shows more use than the other. Advanced wear is indicated by the bi-convex, wedge-shaped cross-section and by the thin, trailing edge of

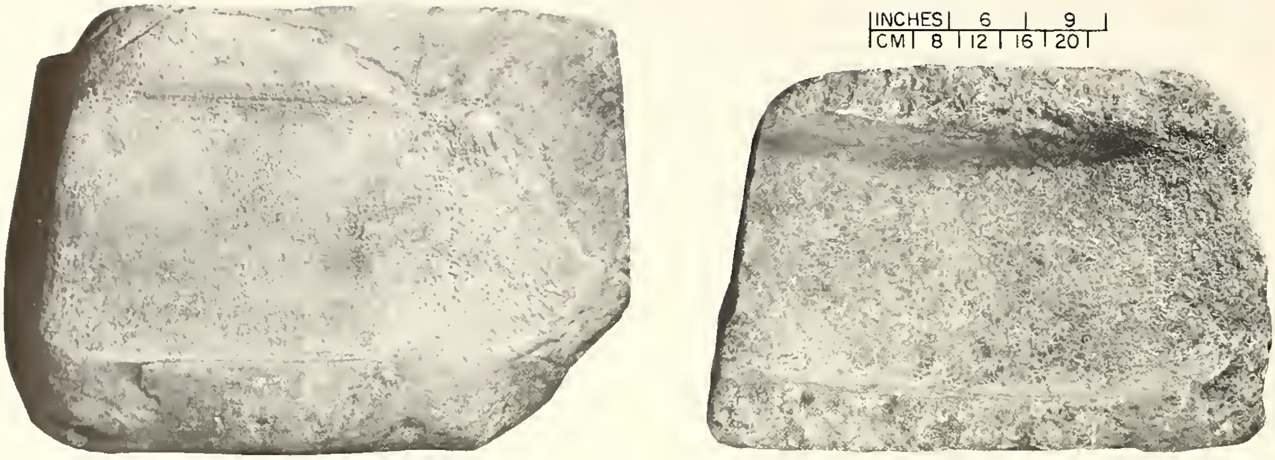

Fig. 14. Metates, Candelaria Site.

the tool, which shows battering that could have been caused by pounding material on the surface of the metate, to prepare it for grinding. In outline, the tool is oval, having one flattened side, and the ends are beveled because of use in a trough metate (Fig. 13d). Size: length, 5.2-7.9 inches; width, 4.2-5.1 inches; thickness, 1.3-1.8 inches; weight, 37.8-57.9 ounces.

METATES (6)

Four of the six metates recovered have a developed wear, and sufficient use to classify them as Open-End, Trough forms; the others are incipient slabs, lightly pecked to shape, and with no indicated use. The worn examples are made from large, naturally rectangular blocks of sandstone, or, in one case, a large river boulder. With only occasional edge-pecking; the bulk of the modification is directly on the grinding surface itself. Two forms are separated by different lateral (side-to-side) cross-sections. One fragment is deeply worn, and exhibits a U-shaped profile, no break existing between the slightly inclined side walls and the smoothly curved trough bottom. The lower part of the metate is broken, so that the longitudinal (front-to-back) profile cannot be fully described, but the remaining portion drops steeply from the closed end toward the center of the grinding area.

Three other metates range from new to slightly used. They have definite, sloping trough walls, which break with the slightly concave, grinding surface. One has a grinding surface lower on the right side, probably owing to heavy, uneven, mano pressure by a right-handed user. The longitudinal axis is concave, the maximum dip being near the center of the grinding surface, a characteristic which differs slightly from many other metates described for the Reservoir (Dittert, et al, 1961, p. 188). These three metates include two floor contact specimens, and can be considered the common form used by the site occupants. Size: length, block, 19.0 - 22.7 inches; trough, 18.0 - 22.0 inches; width, block, 13.2 - 17.0 inches; trough, 5.4 - 10.3 inches; thickness of block, 3.6 - 5.5 inches; depth of trough (incipient wear excluded) 0.6 - 1.7 inches (Fig. 14).

MORTARS (2)

Fragments of two mortars, made from unshaped, spherical blocks of sandstone, are sufficiently complete for reconstruction. An interior, circular depression is shaped by pecking, having little grinding smooth; the grinding that exists can be attributed to use. The walls of the mortar bowl are curved-to-slightly undercut. Size: length, 8.3-10.5 inches; width, 2.8-6.0 inches; thickness, 0.8-3.6 inches.

FLOOR POLISHERS (3)

Characteristics common to these artifacts are: (1) pecking and grinding smooth of the use surfaces, (2) grinding surfaces which are convex in all axes, (3) and small striations which occur in parallel sets at converging angles across the face of each tool.

One specimen is fashioned from a flat, oval river cobble, modified by some edge-pecking; and pecking and grinding are probably attributable to use. Also, one face has a small,circular patch of red hematite (Fig. 15b).

A second specimen is a sandstone concretion, having one highly convex,use surface, and the obverse face, unused and concave. Edges are not altered,nor is there any paint stain (Fig. 15c).

The third polisher is an irregular, oval, river cobble. A polished, use area is on each face, but there is no edge pecking.

The shape of the convex, use surfaces, the grinding striations, and wear all suggest that the three polishers were used to finish floor and wall plaster. The patch of red hematite indicates that one

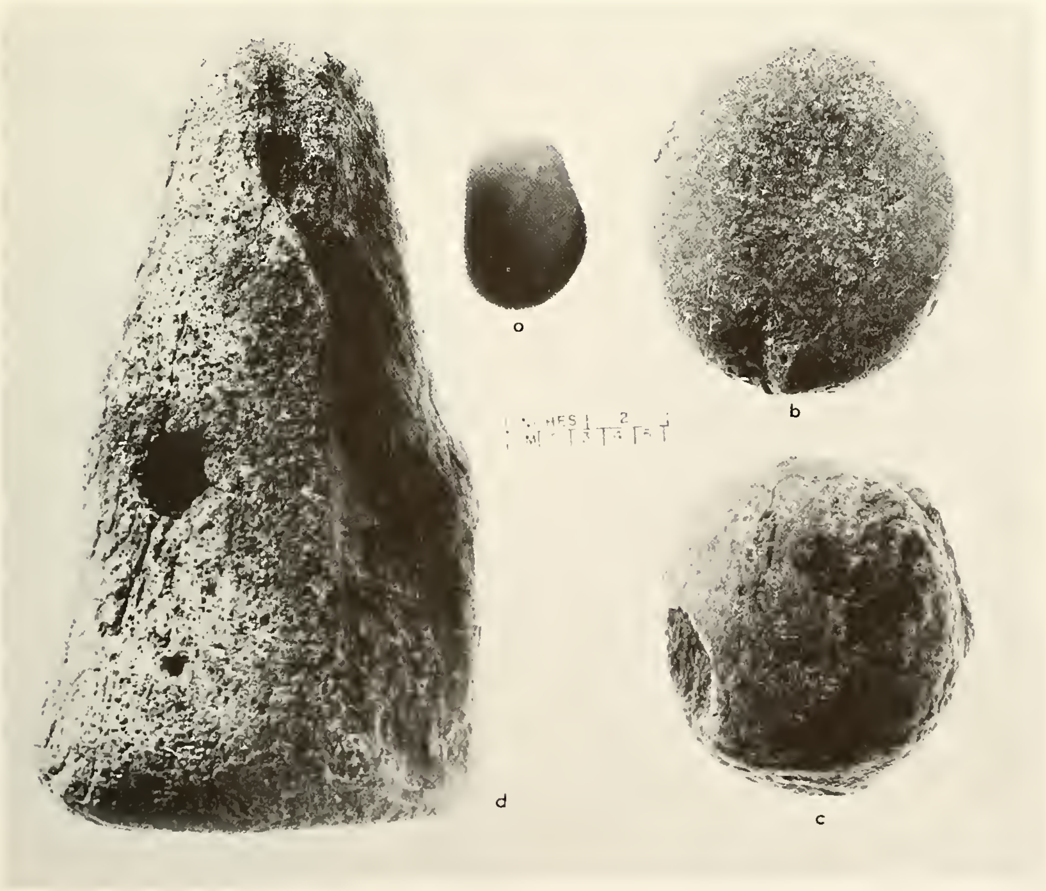

Fig. 15. Ground pebble, floor polishers, and tiponi, Candelaria Site. a, ground pebble; b-c, floor polishers; d, tiponi.

of the tools was also used to grind such mineral to powder for paint. Size: length, 4.2-7.1 inches; width, 3.8-3.9 inches; thickness, 1.4-2.2 inches; weight, 21.4-48.9 ounces (Fig. 15).

GROUND PEBBLE (1)

The small, oval, flat pebble recovered is ground smooth on both faces, but not otherwise modified. Strong, cross light reveals a few, light grinding striations, running at various angles across one face. The pebble seems too small to have been ground on, probably, it was used to grind another object. It may have been used as a polishing stone for pottery. Size: length, 2.2 inches; width, 1.6 inches; thickness, 0.4 inch; weight, 1.4 ounces (Fig. 15a).

TIPONI (1)

A conical object of sandstone, naturally-shaped, but with some edge pecking, has a rounded point on one end. The opposite end expands to a large, flat base. One side contains a naturally-shaped, cylindrical hole. This object was found on the pit house floor, between the fire basin and the ventilator, and is similar in form to Tiponi-type objects described by Roberts (1932, p. 61). Size: length, 9.0 inches; width at base, 5.3 inches; thickness at base, 4.2 inches; diameter of hole, 0.9 inches; depth of hole, 0.9 inches (Fig. 15d).

Use of these Tiponi stones as corn-goddess symbols is documented by Roberts (1932, p. 61) from information given him by his Zuni workmen at the Village of the Great Kivas. Roberts was told that similar objects were used in kivas, and occasionally are set out in a corn field.

Lange (1944, pp. 446-448) has traced the distribution of Tiponis in space and time. Geographically, he found them from the Hopi country of Arizona to the Rio Grande in New Mexico; and, in time, from A.D. 1000 to the present day. The specimen discussed above extends this range back to A.D. 850-900. However, nowhere in Lange's documentation does he mention a hole in the side of the conically shaped stone.

SLAB COVERS (7)

Most of the six large sandstone cover slabs, shaped by edge-flaking and grinding, have naturally smooth, flat faces. Only occasionally have they been artificially pecked and ground. In plan view, they vary from round to sub-rectangular shapes. In cross-section the covers are thin, parallel-sided, having straight-to-convex edges. These slabs

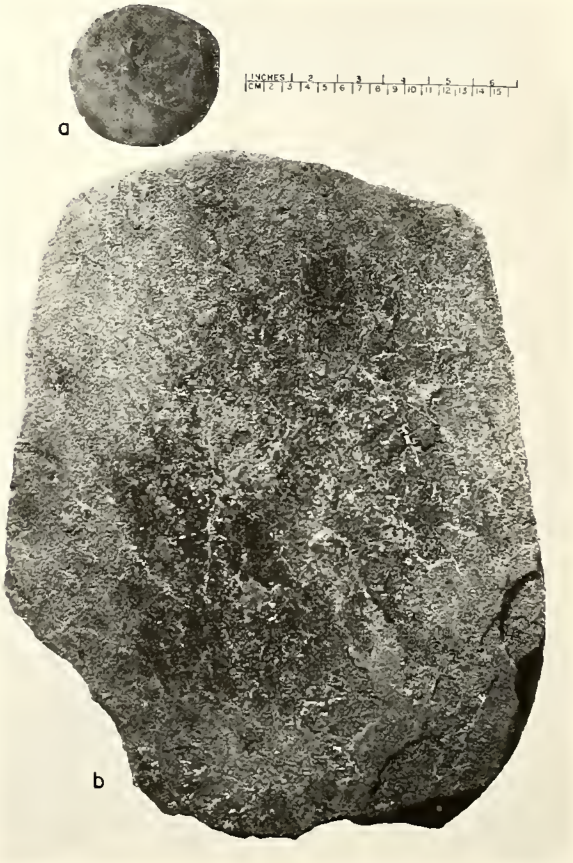

Fig. 16. Slab covers, Candelaria Site. a, small disc; b, cover for an architectural opening.

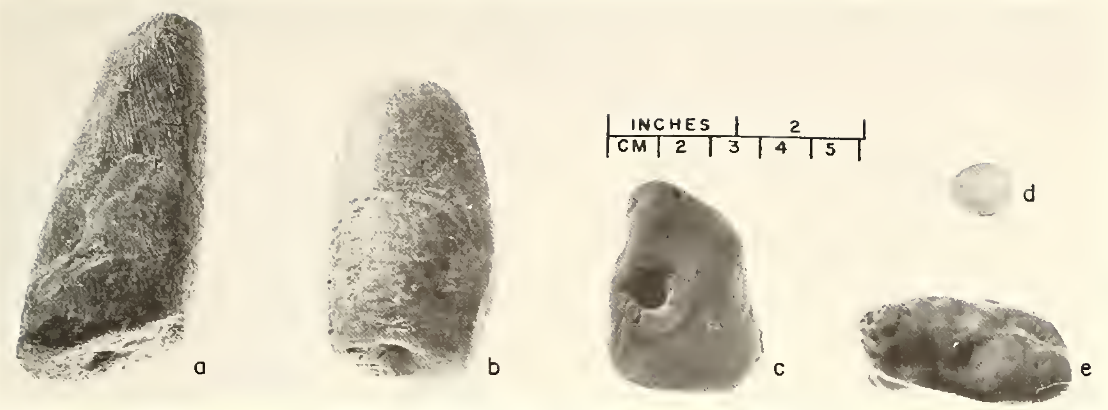

Fig. 17. Shaped calcite, elbow-pipe bowl, and concretions, Candelaria Site. a-b, shaped calcite; c, elbow-pipe bowl; d-e, concretions.

may have been used for covering subfloor pits, wall niches, door openings, and roof hatches. Size: length, 1.2-1.8 feet; width, 1.0-1.5 feet; thickness, 0.1-0.2 feet (Fig. 16b).

In addition to the large slab covers, one small, shaped disc may, also, have been used as a cover, perhaps for small-mouth, basketry or pottery vessels. This is a small, thin, circular piece of sandstone, shaped by pecking and grinding smooth. Faces are flat-to-slightly convex, and the edges are thinned. Some flake marks are visible on the edges, but most have been obliterated by grinding. Grinding striations and a ground smoothness are, also evident on the faces. The stone from which the disc cover is ground, is tan color, but a portion of the edge is pinkish-red, owing to burning. Size: length, 3.4 inches; width, 3.1 inches; width, 3.1 inches; thickness, 0.4 inch (Fig. 16a).

SHAPED CALCITE (2)

Characteristics possessed in common by these two elongate objects are: many, smooth ground sides; flattened ends, one larger than the other; a small, round, shallow hole drilled in the larger, basal end; the basal end angled to the centerline; and lack of an inferred, utilitarian use.

One is conical, having many-faceted sides, each covered with a mass of parallel grinding striations, angling across the surface. The small end is slightly rounded and well ground. The basal end is not well finished, and is drilled (Fig. 17a).

The second calcite object is ellipsoid in shape, and has flattened ends. Its sides are also ground, but not noticeably faceted or striated. Neither end is well finished, and the larger one is drilled (Fig. 17b).

Suggested non-utilitarian uses are: (1) stones in a medicine bundle, an interpretation based on analogy with currently used medicine stones, and on the general similarities to worked, calcite artifacts in the survey collection (Dittert, et al, 1961, p. 193); (2) clan symbols, similar to a stone in use at Isleta Pueblo, and (3) pipe blanks from the conical and elliptical shapes and the occurrence of small drilled holes in the large end of both specimens. Size: length, 2.5-2.9 inches; width, 0.7-1.4 inches; thickness, 0.6-1.0 inches.

ELBOW-PIPE BOWL (1)

A recovered elbow pipe made from an elongate, irregularly-shaped, sandstone concretion, has not been modified on the surface, and is bumpy, but smooth, showing a touch of polish in spots. A large hole is drilled through one end of the stone to form a bowl, and a much smaller hole (0.2 inch diameter) through the side of the stone for a stem hole. A ground, circular ring surrounds the exterior of the stem hole and apparently, a tube stem abutted the bowl exterior at the ground ring. The interior of the bowl compartment shows no evidence of burning or soot, unlike the clay, cloud-blower pipes. Size: length, 1.5 inches; width, 1.3 inches; thickness, 1.0 inch; bowl diameter, 0.5 inch; depth, 1.2 inches; stem, 0.2 inch; weight, 0.9 ounces (Fig. 17c).

CONCRETIONS (2)

Two unmodified, agate concretions were found on the pit house floor. One is oval in shape and has a projection from each face (Fig. 17e). A second is spherical in shape and has one flat side (Fig. 17d). No indications of human workmanship are apparent, and the presence of the stones on the floor is the sole implication that these stones were used by man. Oddments of this sort are commonly found in medicine kits. Size: length, 0.5-1.7 inches; width, 0.4-1.0 inch; thickness, 0.4-0.8 inch.

Bone Artifacts

Only two bone tools were recovered from the floor of the pit house, and both are classified as awls. Descriptions follow those of Kidder (1932). Broken splinters taken from the shaft of animal long bones were used to fashion the awls. The points taper to a fine tip, which has a polished luster from use: the many grinding striations indicate the method of manufacture. The butt end of one tool is rounded, and shows evidence of polish and grinding striations. Only one tool shows any modification of the shaft; this specimen also has shallow edge notches for a hand grip, polished and with a profusion of striations (Fig. 18a).

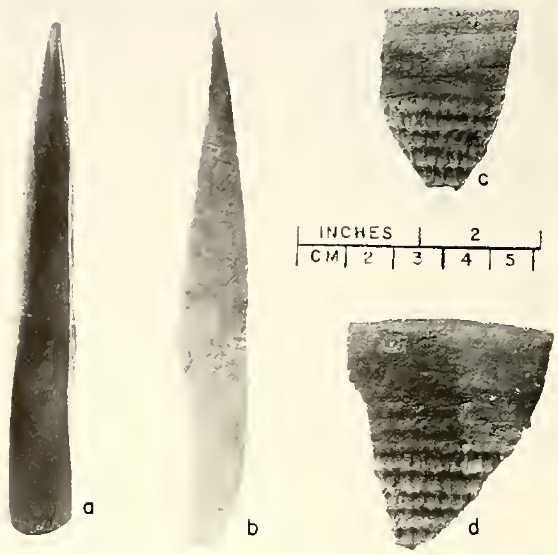

Fig. 18. Bone awls and basketry-impressed sherds, Candelaria Site. a-b, awls; c-d, basketry-impressed sherds.

The other awl was cut from a greenbone, and the splinter warped into a decided curl, as the bone dried (Fig. 18b). It could have been used for punching leather or for basketry construction. Size: length, 4.2-4.3 inches; width, 0.6 inch; thickness, 0.2-0.3 inch; tip angle, 14.5-17.7 degrees.

Basketry Impressions

No perishable pieces of basketry were preserved, and the only evidence of textile are the impressions present on the exterior of two Piedra Black-on-White bowl fragments. The reconstruction study of these impressions follows procedures established by Morris and Burgh (1941) in their analysis of Anasazi basketry.

The two sherds are from a single bowl having exterior, basketry impressions. The sherds are rim pieces, and the impressions are high on the outside wall, just beneath the ceramic rim. However, the topmost coil is all but obliterated. The impressions in the fired clay are deep and quite clear, but they are negative casts of the original basket. In order to study a set of positive impressions, a cast was made by pressing the sherd into soft modeling clay.

Attributes of the basket, observed on the clay reproduction, are as follows: close coiling; a diagonal trend to the splints, indicating an interlocked stitching; coils spaced 6.3-6.6 to the inch; stitches 10-14 to the inch; and, although little of the actual foundation can be seen between the stitching, the arrangement of the stitch elements indicates more than one rod. Because the ceramic sherds are parts of a bowl, the basket in which the bowl was constructed must have been a bowl-shape (Fig. 18c-d). The two impressed sherds are fragments of a single vessel, found in the trash.

TABLE 7

OCCURRENCE OF MAMMAL BONES,
CANDELARIA SITE

MAMMALS*	LOCUS		TOTAL
	Pit House Roof Fall	Surface Structure	
Odocoileus - deer	3	-	3
Odocoileus - deer or *Ovis* - large sheep	-	4	4
Sylvilagus - cottontail	-	3	3
Unidentified fragments	8	13	21
TOTAL	11	20	31

* Identification by Richard B. Forbes of the Department of Biology, University of New Mexico.

Non-Artifactual Data

Several types of non-artifactual data were collected: mammal bones, pollen, and soil samples. Up to the present, only the animal bones have been identified, and the remaining material awaits future study by specialists. Two, and possibly three types of animals are represented: deer, cottontail rabbit, and, possibly, a large sheep (Table 7). Bone remains of these animals were found in both of the architectural units. Because all of these animals inhabit the surrounding countryside today, their prehistoric occurrence indicates no major change in the environment. Deer are common throughout the Reservoir, and a large number are taken every year during hunting season. Cottontail, although not so plentiful as jackrabbit, are found in all vegetation types. The possibility that four of the identified bones are those of a large sheep may indicate that prehistoric man hunted high up on the adjacent Piedra Peaks, which have a pine-forest cover and rise to a maximum altitude of 8,500 feet.

Burial Practices

One fragmentary skeleton was removed from the general fill of the pit house; human bones are scattered in the general house fill on top of the roof fall level. Also, one human, long bone fragment was found protruding through the sealed plaster of the east wall niche. Most of the bones looked as if they had been tossed into the pit after the roof burned; or, perhaps, they are those of an individual formerly buried near the edge of the pit. Subsequent erosion could have scattered the bones into the pit house depression, as it filled.

CHRONOLOGY

An idea of the age of prehistoric occupation is supplied by the ceramic types, dated elsewhere by association with tree-ring dates. Few wooden beams were present in the architectural structures; and none of them were suitable for dendrochronology studies. However, tree-ring dates have been obtained from nearby LA 4408 (Chap. III), and they are applicable to this site, since both occupations are culturally similar (Table 12).

The time span of local and trade ceramic types found in the Reservoir has been previously presented (Dittert, et al, 1961, Fig. 37, pp. 232-233). These dates can be applied to the ceramic complexes which characterize each of the three phases of the Pueblo Period.

As previously explained in the discussion of ceramic types, Piedra Black-on-White is a diagnostic of the Piedra Phase. It is associated with a plain gray (tentatively Piedra Gray) and a neckbanded; the latter is referred to in this report as Rosa Neckbanded. These three types fall into a time span of A.D. 850-950.

Ceramics typical of the earlier Rosa Phase include Rosa Black-on-White, Gray, Brown, and Neckbanded. These types date from A.D. 700-850 in the Piedra River Section of the Reservoir. One late type, Arboles Black-on-White, is present, and dates from A.D. 950-1050.

From a quantitative standpoint, the central complex is the Piedra Phase ceramics, which date from A.D. 850-950. The other ceramic distributions overlap this span, and represent a continuing development in a ceramic tradition. Because of the relatively large quantity of neckbanded jars and the higher proportion of Rosa Gray to the tentative category of Piedra Gray in the check sample analyzed, it is felt that the Candelaria Site was occupied toward the early part of the Piedra Phase. For the same reasons the site is confined in time to A.D. 850-900.

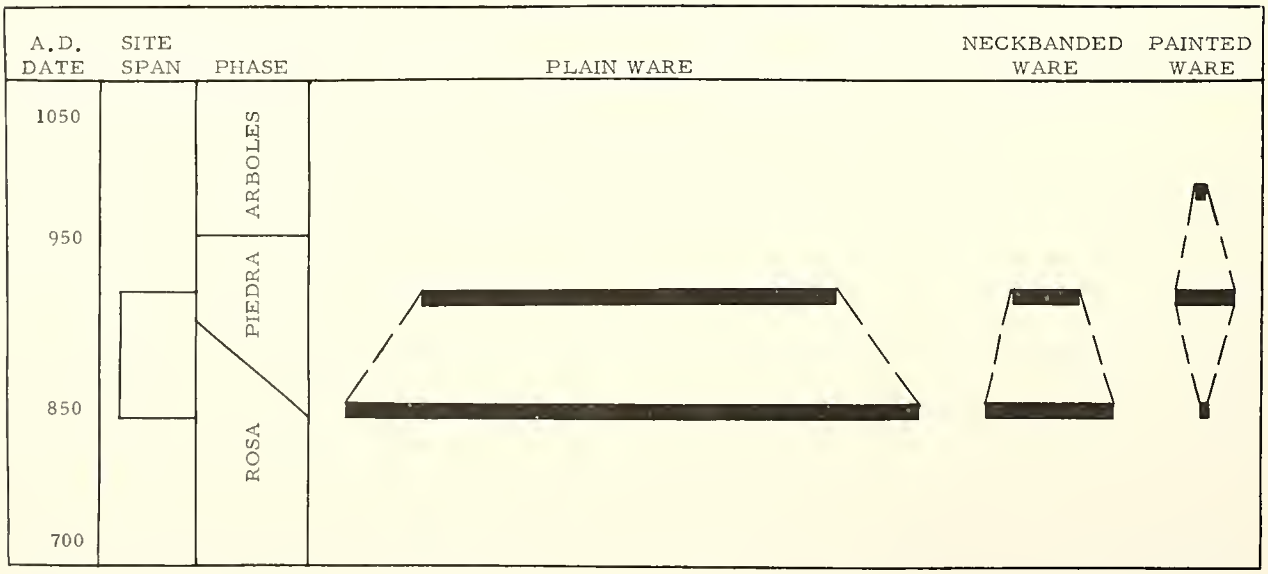

Fig. 19. Graph showing frequency of potsherds by phase, Candelaria Site.

Outside checks on this dating are provided by the trade types. Chapin Gray is given the very long span of A.D.450-900, and Bluff Black-on-Red is restricted to the period A.D. 800-900; both types overlap the dates derived from the local ceramics. Bluff Black-on-Red is of further value, because, in the original Reservoir-wide survey, it was found to be associated with the Rosa Phase and early Piedra Phase (Dittert, et al, 1961, p.232).

SUMMARY AND CONJECTURES

Excavation of a small, Single Unit site of the Piedra Phase, LA 4406, the Candelaria Site, has salvaged archaeological information which otherwise would have been lost in the construction of a new state highway. This chapter presents those data, and deals with the site and its surroundings. Description of the site includes the architecture, refuse, and artifactual content. A description of the surrounding environment is based on present conditions, augmented with information on such prehistoric bones as have been identified.

The principal architectural feature is a pit house, used both for domestic residence and ceremonial purposes. Associated with this structure is a surface storage unit, and close by, a small sheet deposit of refuse.

Artifacts collected from the architecture and refuse are primarily tools of clay, stone, and bone. Impressions on several potsherds indicate that basketry containers were also fashioned and used. Most of these portable tools and containers were employed to fashion other tools, in building, in procuring and processing foods, and storage. However, a group of ceremonial items indicates that the pit house served a dual role in the life of its occupants. This factor, plus the general lack of trade goods, implies that the Candelaria Site was the home of a relatively independent and self-sufficient family.

Occupation is estimated to have spanned a period of about fifty years from A.D. 850-900. Probably not more than two or three generations are represented, and possibly less. For these reasons, the material culture described is diagnostic of the early Piedra Phase at a small residence.

In the Reservoir-wide survey, it was found that the most common site is a Single Unit, of which the Candelaria Site is an excellent representative. During the three Pueblo Period phases (Rosa, Piedra, and Arboles) over 60 per cent of the components are of this type (Dittert, et al, 1961, Fig.33). Therefore, more information dealing with the norm of the culture can be obtained from excavations from these small sites than from the larger, atypical sites. For this reason it is proposed that most future Reservoir excavations be scheduled to deal with the Single Unit site type, and that larger residence units be studied in fewer numbers proportionate to their occurrence in the survey as the contrasting situation. Thus, when the excavation studies are reintegrated into the survey settlement study, the total picture of any geographic section, or, more importantly, the local, community site cluster (Dittert, et al, 1961, Fig.67), can be understood in terms of a balanced picture of its contents.

CHAPTER III

EXCAVATIONS AT THE SERRANO SITE, LA 4408

by JAMES J. HESTER

PROBLEMS AND RESULTS

One of the sites endangered by construction of Colorado State Highway 151 was the Serrano Site, named for the land owner. Surface manifestations and analysis of the original survey collection indicated a Multiple Unit site of the Piedra Phase (Dittert, et al, 1961, Tables 6, 9, 10). Since only limited research had been performed in the Navajo Project on units of that period and type, excavations were undertaken to define attributes of the site type and to provide data for a comparison with similar remains, described by Roberts (1930) from nearby Stolsteimer Mesa. The excavations revealed a complex series of superimposed pit houses, four in one location and two in a second location, as well as a series of associated surface rooms.

Setting

The Serrano Site is in Sec. 5, T 32 N, R 5 W, NMPM, Archuleta County, Colorado. The situation is the crest of a north-trending ridge, which is part of the second Pleistocene bench on the west side of the Piedra River (Fig. 20, upper). Small water courses, flowing from the Piedra Peaks immediately to the northwest, drain three sides of the ridge on which the site is located. Pinyon and juniper trees cover the site, and sagebrush grows among the trees (Fig. 20, lower).

The immediate site surroundings would have afforded resources of both the mesa top pinyon-juniper belt and the river valley. Large areas of arable land are available on the Recent terrace, 150 feet east of the site. The aggregate of all resources supplies ample water, farmland, game animals, wild plant foods, construction materials, and materials for tool manufacture for the maintenance of a fairly large, sedentary, prehistoric population. Other factors favoring the site situation include the excellent view of the river valley and good drainage. In addition, resources of the Transition Zone would have been available to the Serrano Site inhabitants since the Piedra Peaks, which rise to an altitude of 8,541 feet are only three miles to the northwest.

Description

The long axis of the site runs north-south, following the trend of the ridge on which it is situated. Examination during survey indicated no imposing group of surface features. Rather, such features consisted of a barely discernible row of masonry surface units along the crest of the ridge, plus a level area, slightly downslope, that was suitable for the construction of pit houses; but the existence of such sub-surface structures was not definitely established until excavations began.

Research Procedure

Initially, a test trench was dug with a backhoe to locate cultural features. This effort revealed that the bench deposit includes a layer of river cobbles and sand at a depth of two feet below the surface; and that a pit house, Feature 1, had been excavated into this cobble layer (Fig.22). Mechanical removal of the fill continued until refuse was encountered; excavations were then made by hand. When the wall and floor on the west side of the structure were cleared, it became evident that Feature 1 had been dug through an earlier pit house, a portion of which remained and was designated Feature 3.

Meanwhile, a second trench, to the north of Feature 1, uncovered evidences of another refuse deposit, Feature 2. After a portion of the fill was removed, examination of the trench profile revealed the existence of four successive pit houses, dug into the Pleistocene bench gravels.

Much of the remaining dirt removal was accomplished by hand. The pit houses within Feature 2 were numbered, from early to late, Features 4, 5, 7, and 8 (Fig. 24). Feature 2, as a result, became an excavation unit, the material from which represents a mixture from the fill of Features 5, 7, and 8. Pollen samples were taken from trench faces in both Features 1 and 2.

Concurrent with the pit house excavations, work was accomplished at the surface structures. The group of

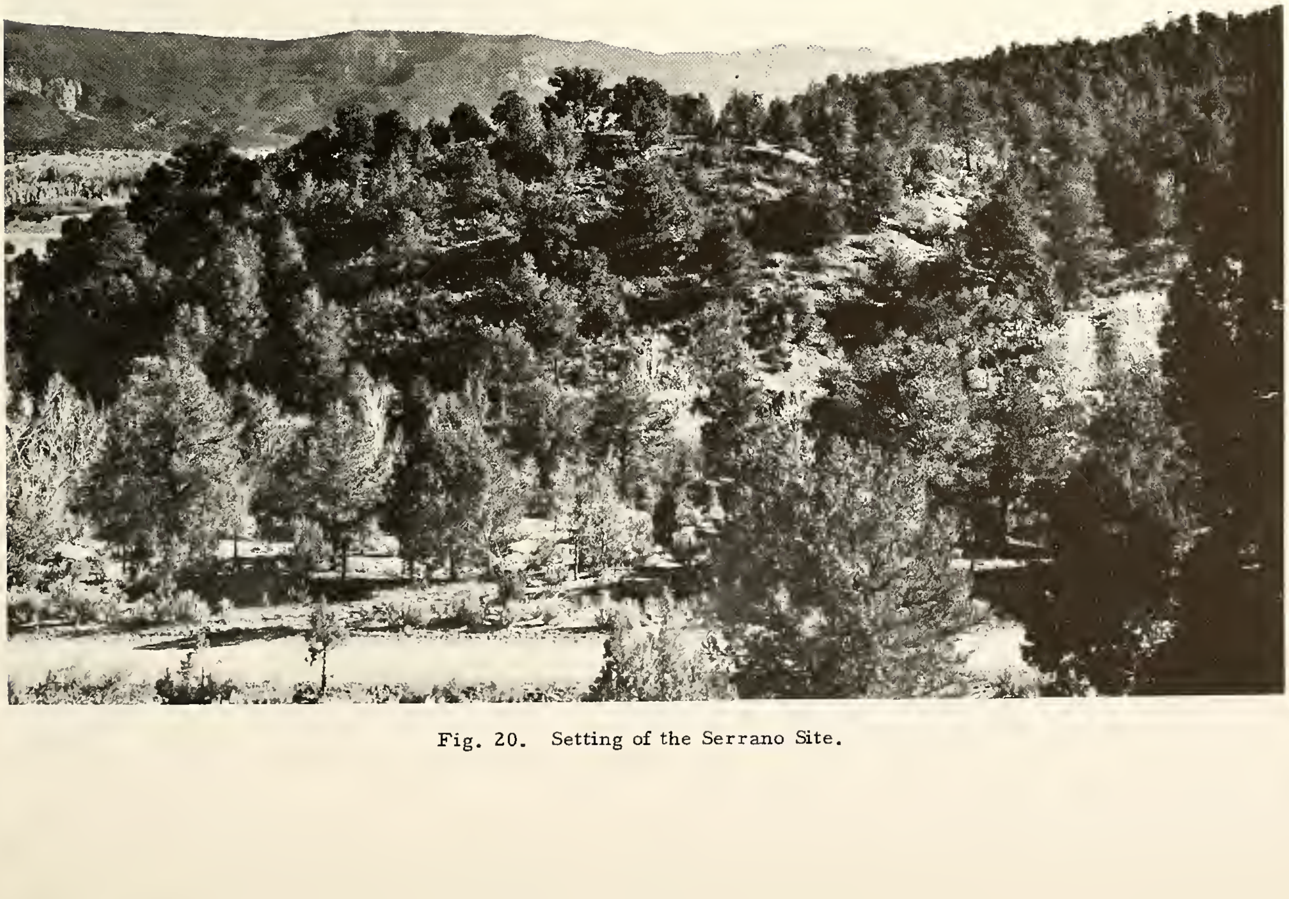

Fig. 20. Setting of the Serrano Site.

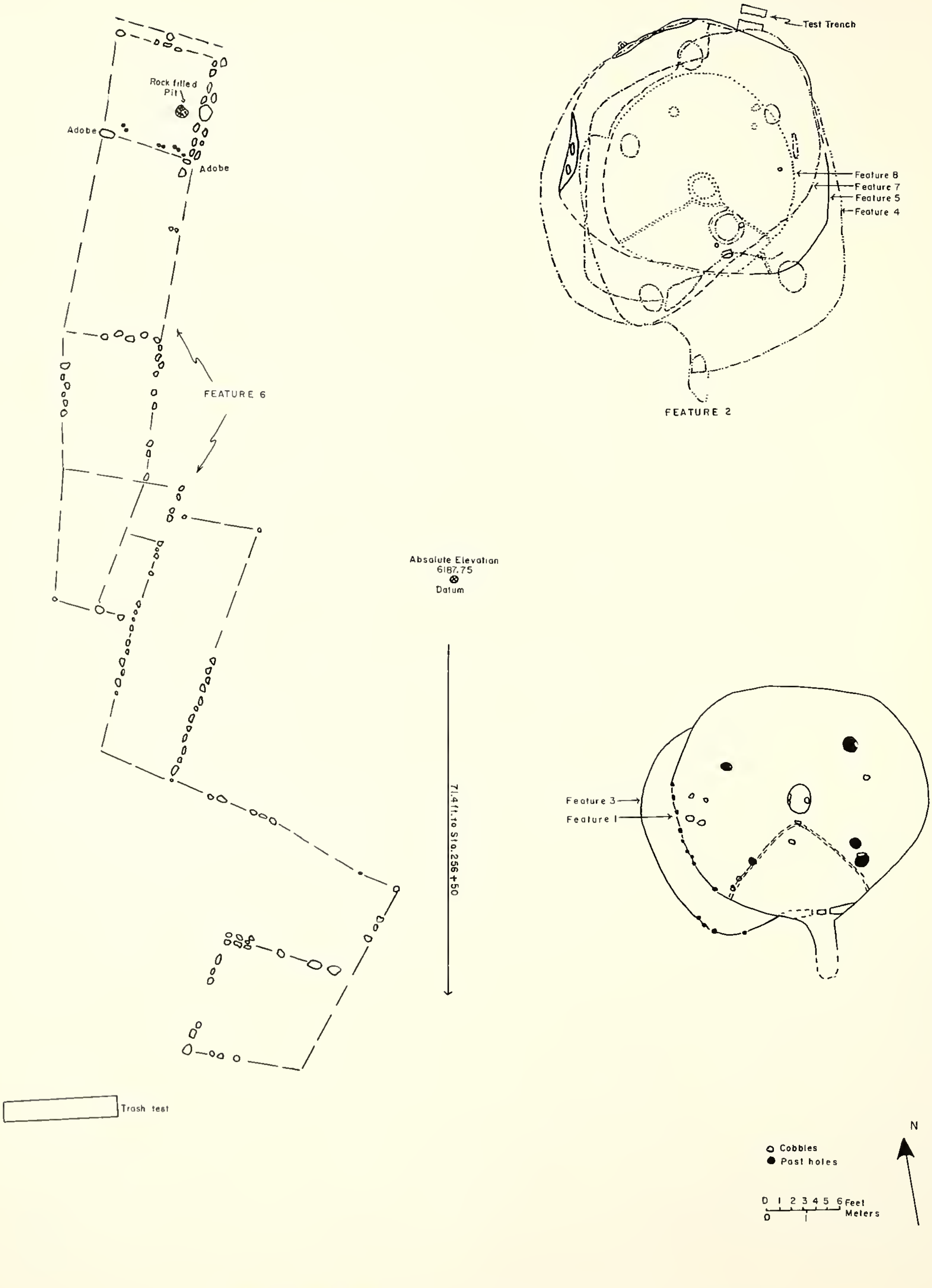

Fig. 21. Map showing the distribution of prehistoric remains at the Serrano Site.

structures, as a unit, was termed Feature 6 (Fig. 27, upper right).

In completing the work at this site, two test trenches were excavated to determine whether or not additional remains existed. One trench was dug, south of Feature 6, in an area that displayed a concentration of refuse on the surface. Sterile soil was encountered at a depth of 0.7 feet in the entire trench. The second trench ran north, from the north side of Feature 2, and sterile soil was encountered throughout its entire length, at a depth of less than 0.1 feet. No other portions of the bench appeared usable for habitation.

Conclusions

The remains of structures at LA 4408 are, primarily, those of pit houses. The surface units are poorly preserved, and, in contrast to the frequent rebuilding of pit houses, exhibit no rebuilding. This propensity on the part of the builders suggests: (1)The primary habitation unit, during Piedra Phase, was the pit house; the shift to above-ground, contiguous-roomed, surface dwelling units began late in the phase. (2) The surface rooms were used primarily for storage, rather than for habitation. (3) The successive rebuilding of the pit houses may have been a result of the slumping of the pit house walls, which had only a thin veneer of adobe plaster over the unstable, river cobbles of the Pleistocene terrace. (4) Conversion of pit houses into subterranean, ceremonial structures is not evident at the Serrano Site, although this trait appears in contemporaneous sites in the Navajo Reservoir District.

ARCHITECTURE

Generalized Details

Generally, the pit houses may be described as circular in plan, having a ventilator to the south; a rectangular, four-post roof support pattern; no lateral entryway; a central fire basin; a deflector; and with the passage of time, a tendency toward reduction in size and increasing shallowness.

The surface units are rectangular, masonry rooms, arranged in a staggered row, one room wide. Because of poor preservation, it is not possible to determine if the rooms were contiguous or separate. The walls consist of a course of river cobbles, occasional, vertical posts being set between the cobbles. Fallen masonry remains are few, so it is probable that much of the wall was jacal. Interior features are absent, which suggests storage use rather than habitation.

PIT HOUSES

These structures were constructed by digging deep pits into the sterile, cobble fill of the Pleistocene terrace. Within the pit, the floors and walls were plastered with adobe. After the original houses were abandoned and partially or completely filled with trash, new houses were constructed by removing some of the trash and plastering new walls and a floor. Several juniper poles were set in the walls in various places to prevent slumpage of refuse or cobbles. Instances where poles reinforced the walls occur once in Feature 1 and three times in Feature 2.

Shape

The form of the pit houses varies from circular to oval. Diameters range from fifteen feet to twenty-eight feet and does not include the length of the ventila-

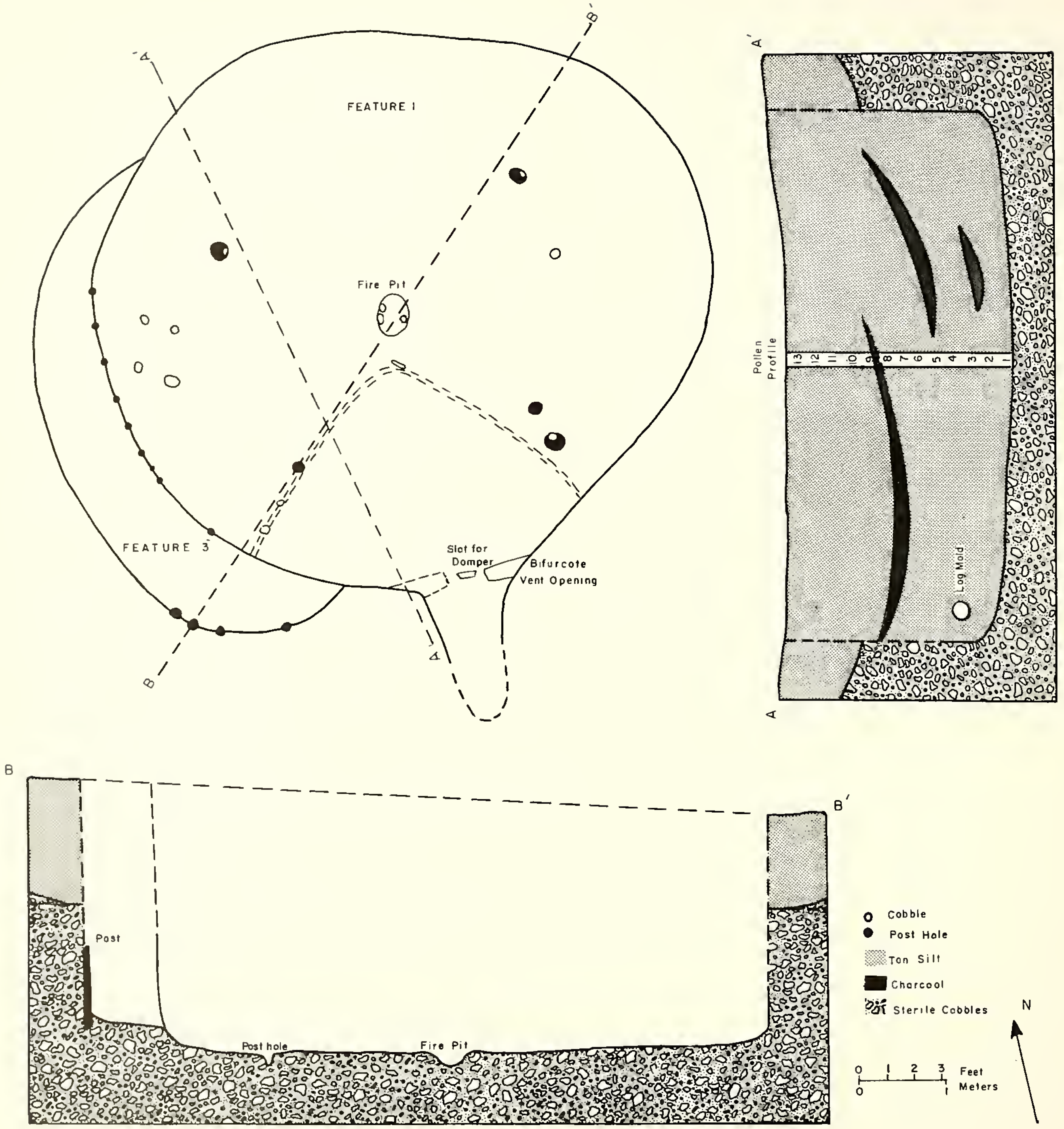

Fig. 22. Plan and profiles of Features 1 and 3, Serrano Site, showing stratigraphic relationships and nature of fill.

tor, which may be as much as 5.5 feet. The depth of the pit houses below the present surface varies from 3.1 to 7.2 feet. Walls are straight and the floors level, with a slight rise occurring at the base of the walls.

Walls

Walls were normally formed by the application of adobe plaster to the sterile, cobble-and-sand layer into which the pit house was dug. This plaster, ranging from 0.3 to 0.4 feet in thickness, served to prevent the loose, sterile soil from slumping into the excavation. Maximum standing height of the walls at the time of excavation is two feet. In some instances, upright, reinforcing posts of juniper were incorporated into the wall plaster to further inhibit the slumping. The posts vary from 0.3 to 0.4 feet in diameter, and are placed from 0.5 to 2.5 feet apart. Variations in wall construction include: a retaining wall of river cobbles set in the adobe to provide greater strength in Feature 8; trash fill used for plaster in Feature 7; and the utilization of a wall, resulting from excavation into the trash fill, as a house wall in Feature 5.

Floors

Floors, constructed by plastering a layer of adobe over the sterile cobbles and sand, are somewhat irregular. For the most part they are level except for a slight rise toward the walls. Thickness of the floor averages 0.2 feet. In some houses a slight ridge is present between the fire pit and the ventilator (Fig.25). These ridges are semi-circular in outline and extend from wall to wall. These ridges may have served as a devise for dividing the floor into distinct areas or, if they are the base of destroyed partition walls, would aid in the ventilation system. They range from 0.1 to 0.2 feet in height and are 0.4 feet in width.

Roof Construction

Evidences of roof construction include burned logs, log molds, and adobe casts. The main roof beams are oriented in a north-south direction, other beams being laid across at a ninety degree angle. On the top of the roof is a layer of adobe, 0.4 feet thick.

Roof Supports

Four post holes arranged in a rectangular pattern, are dug through the floor into the sterile cobbles. Occasionally, cobbles are set in the walls of the post holes, probably as additional supports for the posts. Because of the extensive rebuilding, four posts were not found in every house; however, a pattern of four appears to be dominant. In one instance (Feature 1) an auxiliary post is next to a main support post. Post holes range from 0.6 to 2.5 feet in diameter and 0.7 to 1.2 feet in depth.

An unusual post hole at the juncture of the wall and floor of Feature 5 is set into a small recess in the wall, 0.7 feet wide and 0.7 feet deep. Within the recess, the post hole is 0.3 feet in diameter and 1.0 feet deep. There is a decided, inward slant to the post, which, if continued to a height of 5.5 feet, would have brought the top of the post two feet inside the base of the wall.

Fire Basins

Fire basins, centrally located, are simple depressions, lined with adobe. Around each basin there is a raised, adobe rim. Small, sandstone slabs are sometimes set into the rim. The fire basins are circular-to-oval in form, from 2.0 to 2.4 feet in diameter, and from 0.4 to 0.5 feet deep. The adobe rims are 0.2 feet in height and 0.5 feet in width.

Ventilators

Evidences of ventilators are present

in Features 1 and 4. Ventilators were probably present in the other pit houses, but were destroyed by subsequent construction. The ventilators found consist of trenches or tunnels, dug laterally from the wall of the pit house into the cobbles.

An interesting feature of the ventilation system in Feature 1 is the remnants of a bifurcate opening from the ventilator tunnel to the pit house (Fig. 22). This form of opening was achieved by the construction of an adobe front to the ventilator tunnel, to form two openings about 1.0 feet in diameter, separated by a damper. Excavation revealed only the lower portion of the adobe front, beneath the easternmost opening, plus a slot in the floor for the damper. In general, characteristics of this ventilator are similar to that reported by Roberts (1930, Pl. 10), but his example did not have a removable damper. It is unfortunate that erosion has destroyed many of the details of the construction of the ventilator reported here.

Catchment Basin

An area in front of the ventilator tunnel in Feature 4 is not plastered. This portion of the floor consists of fill, placed on the native cobbles. This fill is 0.4 feet thick, and covers an area 2.2 feet east-west, by 2.5 feet north-south. It permitted water running into the ventilator to drain into the soil, rather than across the floor.

Deflectors

A small stone, set upright in the floor of Feature 1, near the fire pit, and between it and the ventilator, possibly served as a deflector (Fig. 22). The small size of the stone, 0.5 feet in length, would have tended to reduce its effectiveness.

An unusual, adobe deflector, on the floor of Feature 4, consists of a scalene-triangle-shaped block of adobe 3.8 feet long, 1.2 feet wide, and 1.3 feet high. The deflector lies at an angle of 60 degrees to the axis of the ventilator shaft. Its purpose was to deflect air from the ventilator shaft to the fire basin, the center of which is 2.5 feet east of the center of the ventilator shaft.

Ladder Socket

A small hole, located at the southwest edge of the fire pit rim in Feature 4, may have been used as a ladder socket. It is 0.4 feet in diameter and 0.2 feet deep.

Sub-floor Pit

A circular, sub-floor pit with straight sides is located against the north wall of Feature 4 (Fig. 25). The pit was originally excavated into the sterile soil, a portion being undercut slightly under the wall. Within the pit, an additional layer of fill makes a floor. The walls are the sides of the original excavation. This pit was apparently used for storage. It is 2.9 feet in diameter and 0.9 feet deep.

Floor Contact Artifacts

Artifacts, lying on the floors of the pit houses, are rare. Manos on the floors of Features 1 and 7, a sandstone slab of unknown use on the floor of Feature 8 (Fig. 25), and a Rosa Gray pot and an obsidian projectile in floor contact in Feature 5 are the only examples. The nature of these artifacts is not sufficiently distinctive to date the occupation of the various houses within the phase, so that stratigraphic relationship must be used for dating of the occupations.

Comments

No definitive, kiva features are present in any of the pit houses. It is fairly certain that they are the remains of habitation units. The frequent re-

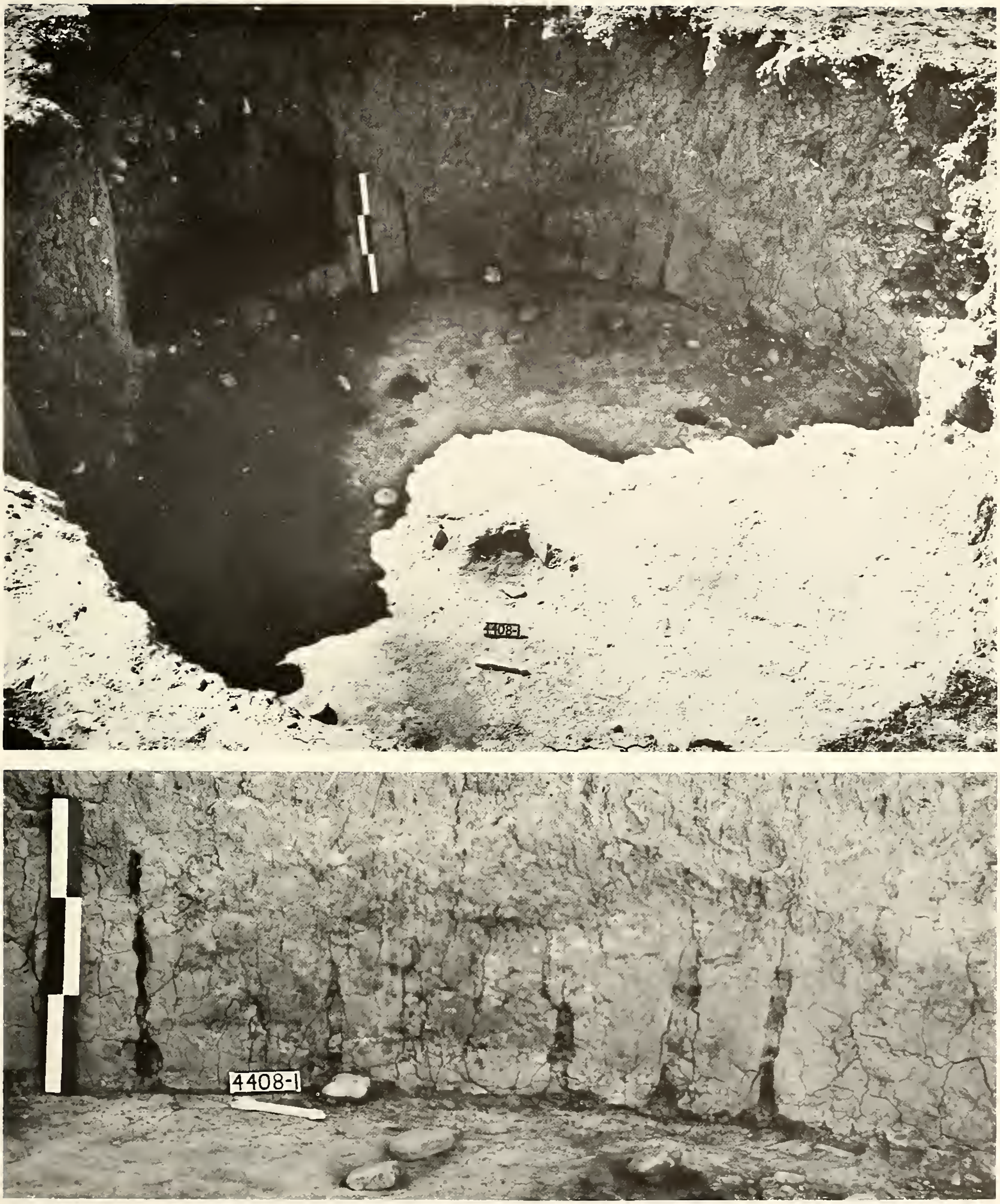

Fig. 23. Pit house, Feature 1, Serrano Site, showing architectural details and remains of earlier Feature 3. Upper: View of Feature 1 after excavation (Note portion of Feature 3 visible behind wall of Feature 1). Lower: View of Feature 1, showing pole-reinforced walls.

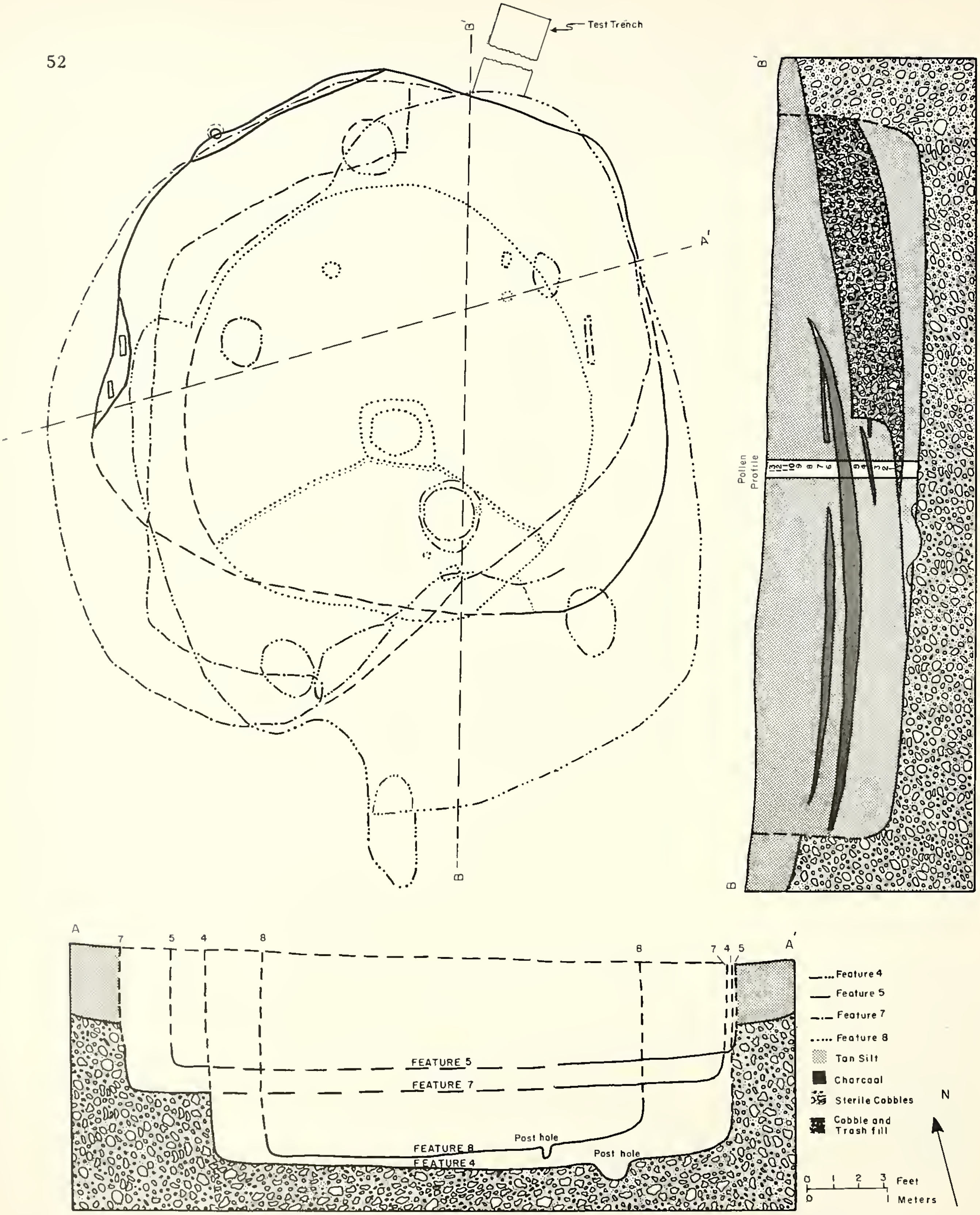

Fig. 24. Plan and profiles of Feature 2, Serrano Site, showing the nature of the fill, and the stratigraphic relationship of Features 4, 5, 7 and 8.

building of pit houses at the site may be attributable to slumping of the walls, rather than to the cumulative effects of a long occupation.

SURFACE ROOMS

A row of surface rooms, along the crest of the ridge, twenty-five to thirty feet west of the pit houses (Fig.21), is in poor condition. It is difficult to establish the exact outline of the walls, or whether the rooms are contiguous or not. As the wall fall occurs in disjunct clusters, most likely the rooms are separate, rather than contiguous. If the rooms are, indeed, separate, there are approximately six of them.

Shape

The over-all form of the structures is a staggered row, some eighty feet in length. The individual rooms vary from seven to ten feet in length and six to eight feet in width. All of the rooms are rectangular in form.

Walls

The walls are formed with a single course of river cobble masonry at the base and occasional upright posts set between the cobbles. Above the course of the cobbles, there was probably a jacal wall. The former height of the walls is impossible to determine. The maximum wall height at the time of excavation was 0.7 feet. No wall openings were discernible; therefore, the method of entry to the structure is problematical.

Floor

The floor consists of a layer of gray, gravelly clay. Because it is only slightly below the present ground surface, it had been subjected to considerable root and rodent disturbance. The absence of hearths and the poor condition of the floor suggest that the structures were used only for storage.

Floor Features

One subfloor pit in the northernmost room is 0.9 feet in diameter and 1.2 feet in depth, and filled with unshaped, unused cobbles. A large, flat cobble covered the pit. Use of the pit is unknown.

Integration of Details at Individual Structures

PIT HOUSE, FEATURE 1 (Figs.22, 23)

The floor, circular in plan, is dug through fill of Feature 3 into the sterile, cobble terrace. Present are: four major roof supports; one auxiliary support post, adjacent to the southeast main post; a trench, or tunnel-type ventilator, having a bifurcate opening and a damper, at floor level; a central fire basin, built of cobbles set in a raised adobe rim; a large cobble, set in the floor, as a deflector; and a low, raised, floor ridge, between the fire basin and ventilator. A post-reinforced wall prevented slumping of Feature 3 fill. Walls and floor are of adobe plaster, and scattered river cobbles, of unknown use, are on the floor. After abandonment, the house was filled with trash.

PIT HOUSE, FEATURE 3 (Figs.22, 23)

A circular-to-oval house is dug into sterile cobbles of the Pleistocene terrace. The walls and floors are plastered with adobe and the walls are strengthened by vertical posts, which retarded slumping. No floor features are present. After abandonment, the house was filled with trash. Approximately seven-eights of Feature 3 was removed to build Feature 1.

PIT HOUSE, FEATURE 4 (Figs.24, 26, 27, upper left)

In form, this house is an irregular oval. The east half is square-shaped,

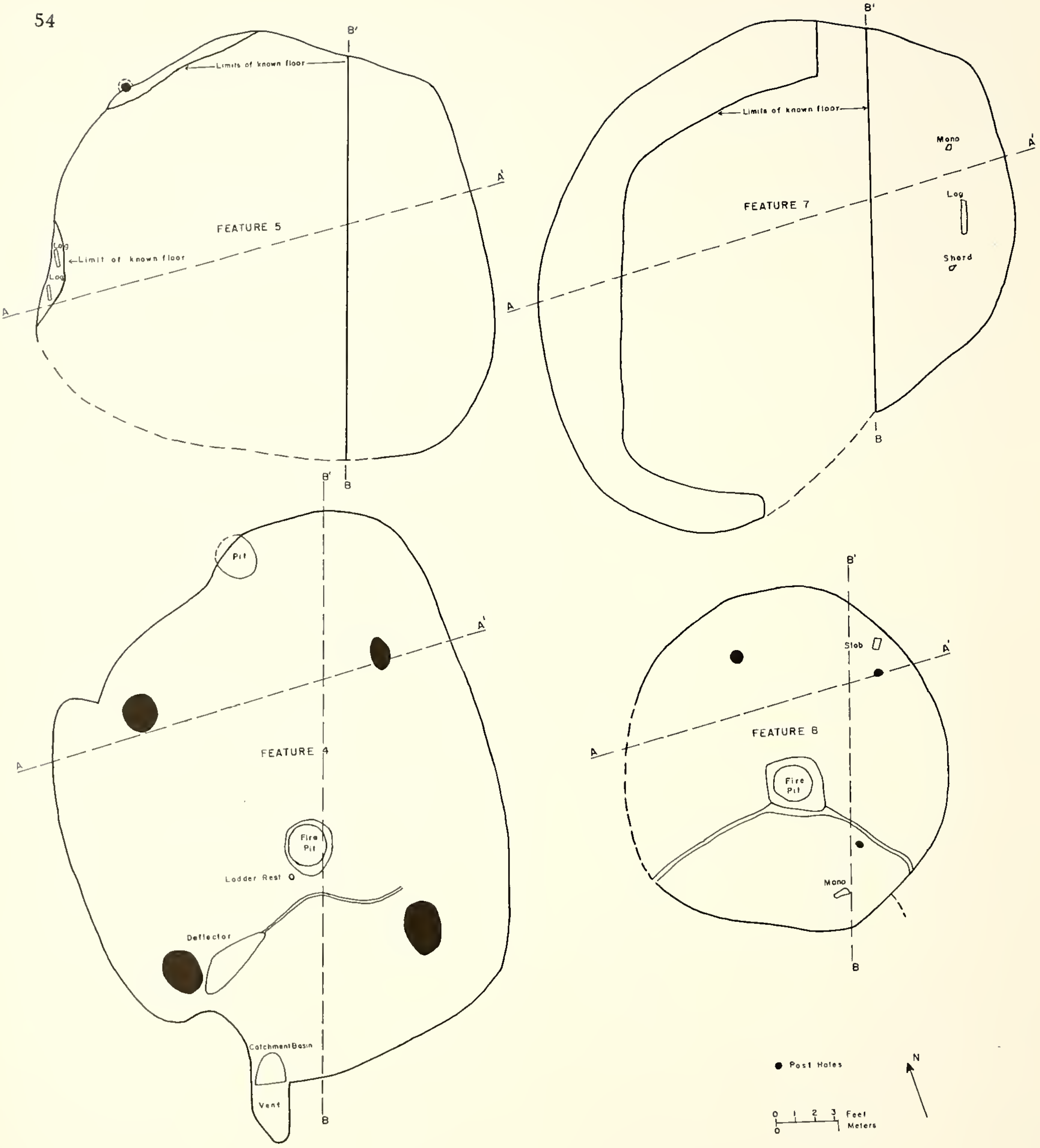

Fig. 25. Plans of Features 4, 5, 7, and 8, Serrano Site. The stratigraphic relationship of these features is given in Figure 24.

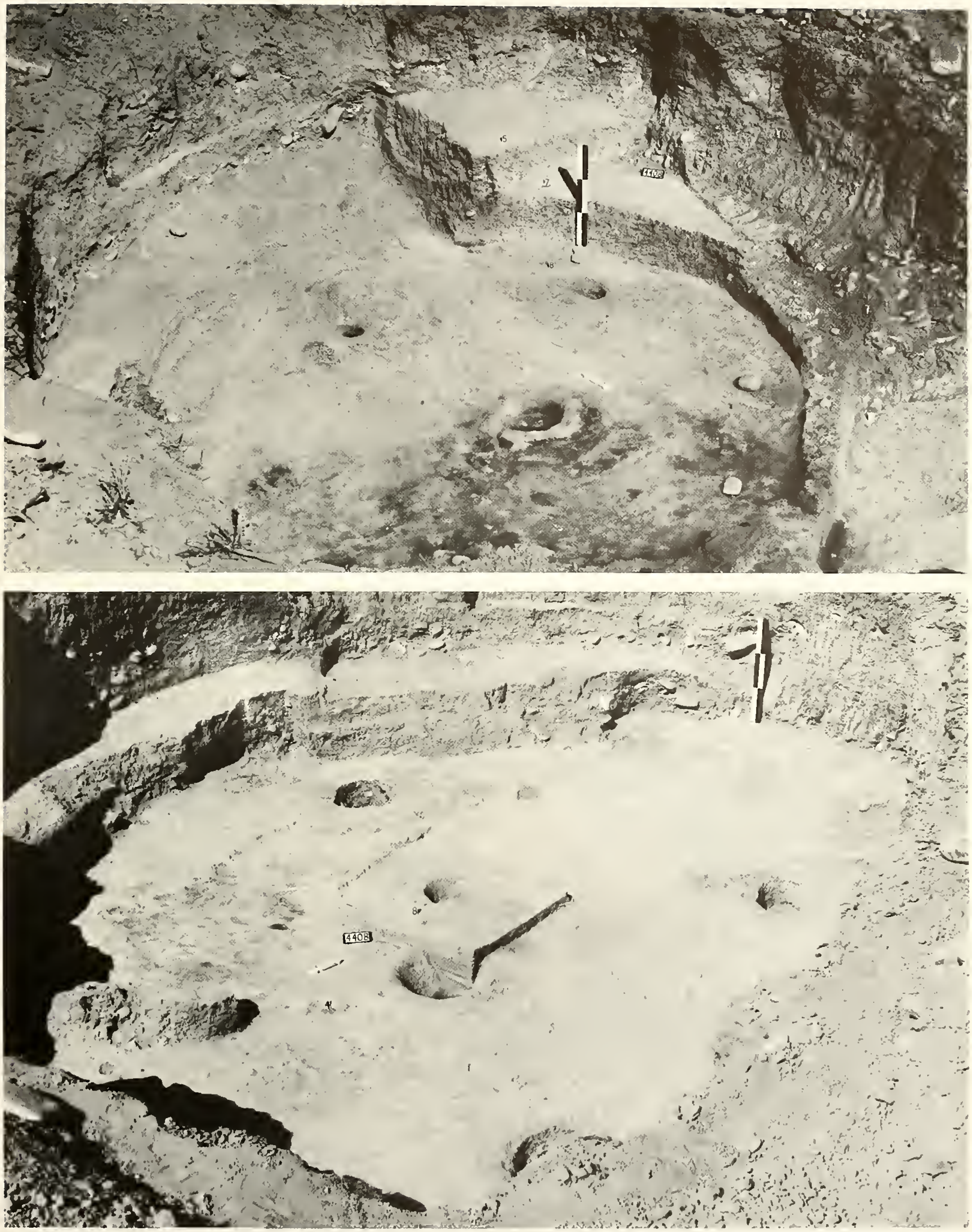

Fig. 26. Pit houses, Features 4 and 8, Serrano Site. Upper: View of Feature 8 after excavation, showing a portion of Features 4, 5, and 7; Lower: View of Feature 4 after excavation, with super imposed Feature 8 fire pit.

though it has rounded corners. The west half is smaller, and more irregular in shape. Walls and floor consist of adobe plaster on cobbles. A trench, or tunnel-type, ventilator has an adobe deflector and floor ridge to direct air flow. A catchment basin in the ventilator controlled drainage. A basin fire pit, dug out and lined with adobe, has an adobe rim. Four large post holes in a rectangular pattern indicate the positions of roof support posts which were probably considerably smaller than the holes. The extra space around the posts could have been filled with cobble wedges. A circular, sub-floor, storage pit is undercut slightly behind the wall. Following abandonment of the pit house, the posts were removed, sand washed into the structure, the walls slumped, and the depression was filled with trash.

PIT HOUSE, FEATURE 8 (Figs.24, 26)

Construction of Feature 8 involved removal of much of the fill of Feature 4. Because of its small size, Feature 8 lies completely within the earlier Feature 4 . Feature 8 is circular in plan; and the walls are adobe-plastered against the fill of Feature 4. Behind the east wall is a retaining wall of adobe and cobbles. The floor is adobe-plastered to the floor of Feature 4, completely covering the earlier floor features. The floor has a ridge between the fire pit and ventilator. The fire pit is a circular basin, having straight, outflaring sides and a flat bottom, lined with adobe. It has a rectangular, raised, adobe rim. Only three post holes were discovered, but they were in the typical, four-post, rectangular pattern.

No ventilator was discovered, but the similarities in the placement of the fire pit and floor ridge of Features 1 and 4 suggest that one must have been used. Perhaps the ventilator associated with Feature 4 was cleaned out and reused. Floor-contact artifacts include a mano and a sandstone slab of unknown use. Following abandonment of Feature 8, the house burned, and the walls were eroded almost to the floor level. The structure then gradually filled with cultural debris and alluvium.

PIT HOUSE, FEATURE 7 (Figs.24, 25)

Because this house is close to the surface, it was badly damaged by the initial backhoe excavations. It is oval-shaped, the long axis being northeast-southwest. Walls are formed by plastering trash fill against the cobbles. The floor is indistinct; it was difficult to excavate, and no floor features were located. The house does not appear to have been used for any great length of time. Following abandonment, it was partially filled with trash and alluvium.

PIT HOUSE, FEATURE 5 (Figs.24, 25)

The house is dug into the fill of Feature 7. It is circular in plan, although slightly flattened on the south side. Much of the floor was mistakenly removed by the backhoe; so that the floor features could not be recorded. The walls are formed by the sides of the prehistoric excavation in the fill of the earlier structures; they are not plastered. The floor consists of adobe plaster on fill. Roof beams present in the fill suggest a crossed, beam-and-pole roof. A post hole, located at the juncture of the floor and wall, could have accomodated an inward-slanting roof support post. Floor-contact artifacts include a Rosa Gray pot and an obsidian projectile point. This house appears to be the latest occupation at the site. Following abandonment, it burned.

SURFACE ROOMS, FEATURE 6 (Figs. 21, 27, upper right)

Little information on the surface units is available because of poor preservation. The rooms are rectangular and occur in a staggered row. Probably they are separate, rather than contiguous.

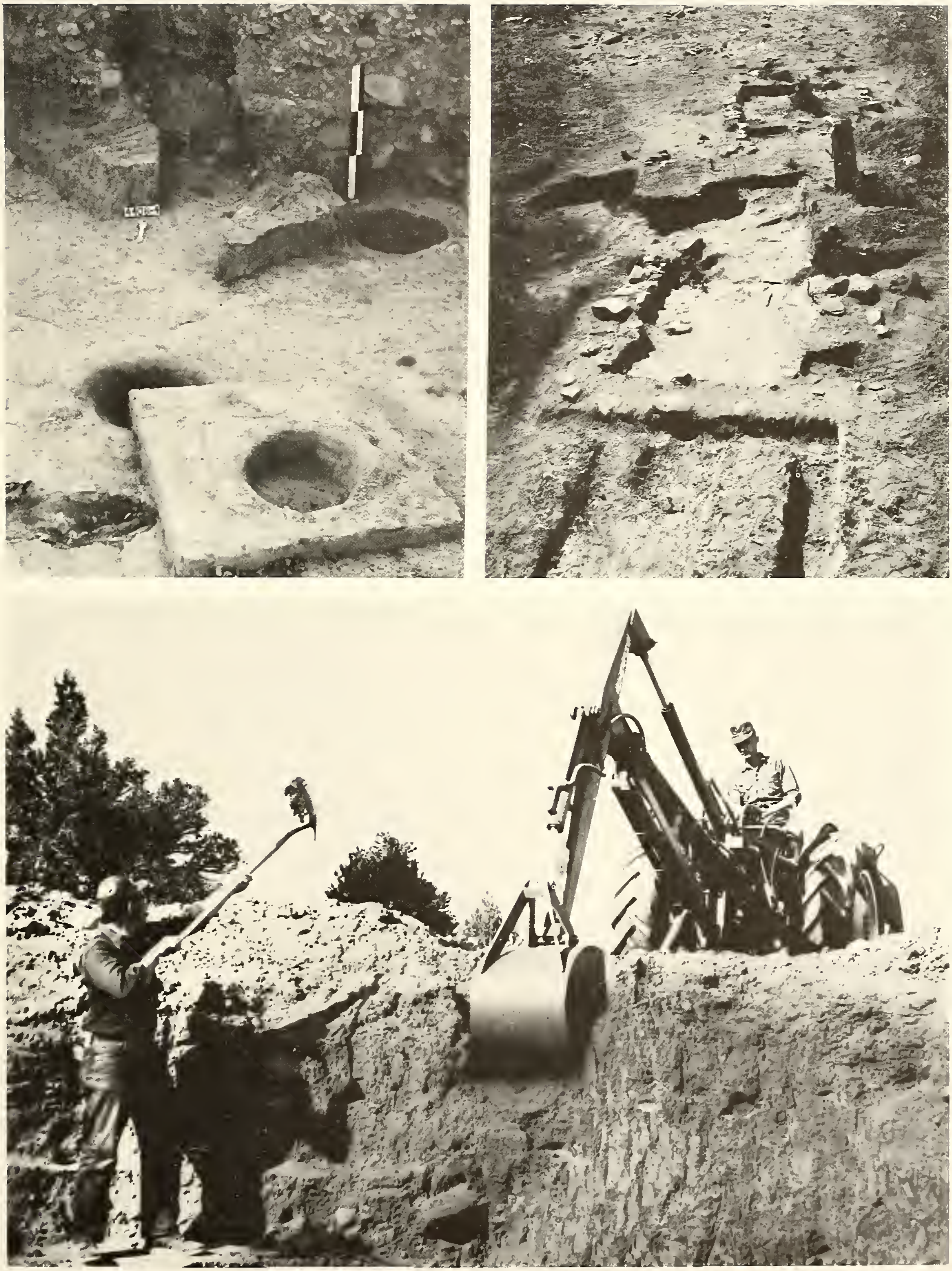

Fig. 27. Pit house, Feature 4; surface rooms, Feature 6; and backhoe excavations underway in pit house, Feature 2; Serrano Site. Upper left: View of ventilator system of Feature 4 showing super imposed fire pit of Feature 8 in foreground (Note adobe deflector in middle background); Upper right: View of excavated surface rooms, Feature 6; Lower: Excavation of test trench to the north of Feature 2, showing utilization of tractor and backhoe.

TABLE 8

OCCURRENCE OF CERAMIC TYPES BY PROVENIENCE, SERRANO SITE(in per cent)

	TYPE	LOCUS														TOTAL SHERDS
		Surface	F - 1 Fill	F - 1 Floor	F - 2 Fill	F - 2 Floor	F - 3 Fill	F - 4 Fill	F - 4 Floor	F - 5 Fill	F - 5 Floor	F - 6 Fill & Floor	F - 7 Fill	F - 7 Floor	F - 8 Floor	
LOCAL	Rosa Brown	-	1.8	.4	-	-	-	1.8	-	-	-	-	-	-	-	28
	Rosa Gray	86.5	80.2	78.9	84.8	96.9	90.0	71.8	81.6	93.0	100.0	97.1	65.8	100.0	83.1	1891
	Rosa Gray with Basket Impression	-	1.3	2.0	-	-	3.3	-	-	-	-	-	-	-	6.3	16
	Rosa Gray with Fugitive Red Paint	-	.7	.8	-	-	-	5.4	11.5	-	-	-	-	-	-	46
	Rosa Neckbanded	-	4.5	1.7	-	-	-	2.2	-	2.3	-	-	-	-	2.1	69
	Kanaa Gray, Rosa Variety	-	2.6	.8	-	-	3.3	-	-	-	-	-	-	-	-	36
	Rosa B/W	-	.6	8.7	-	-	-	-	-	-	-	-	2.6	-	4.3	31
	Rosa B/W Glaze Variety	5.4	1.3	.8	11.1	-	-	6.5	5.2	-	-	2.9	23.7	-	2.1	70
	Piedra B/W	2.7	2.3	.8	1.0	1.6	-	1.4	-	2.3	-	-	-	-	-	39
	Arboles B/W	-	.6	.4	-	-	-	-	-	-	-	-	-	-	-	9
TRADE	Chapin Gray	-	-	1.2	-	-	-	-	-	-	-	-	-	-	-	3
	Twin Trees Plain	-	-	-	-	-	-	4.3	-	-	-	-	7.9	-	-	15
	Mocassin Gray	2.7	.1	-	-	-	-	-	-	-	-	-	-	-	-	2
	San Juan White Ware	-	1.8	1.7	1.0	-	-	6.1	.6	2.3	-	-	-	-	2.1	48
	Mancos Corrugated	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	1
	Morfield B/G	-	-	-	1.0	-	-	-	-	-	-	-	-	-	-	1
	Twin Trees B/W	-	.4	-	1.0	-	-	-	-	-	-	-	-	-	-	6
	Cortez B/W	-	.6	.8	2.0	-	3.3	-	.6	-	-	-	-	-	-	14
	Unidentified B/W	-	-	-	-	-	-	.1	-	-	-	-	-	-	-	1
	San Juan Red Ware	-	.3	.4	-	-	-	-	.6	-	-	-	-	-	-	6
	Abajo R/O	-	.6	.4	-	1.6	-	-	-	-	-	-	-	-	-	9
	La Plata B/R	-	.2	-	-	-	-	-	-	-	-	-	-	-	-	3
	TOTAL PER CENT	100.0	99.9	99.8	99.9	100.1	99.9	99.6	100.1	99.9	100.0	100.0	100.0	100.0	100.0	—
	TOTAL SHERDS	37	1255	241	101	64	30	277	174	43	1	35	38	1	47	2344

The walls are formed of a course of river cobbles at the base, vertical posts being set between them. Probably a jacal wall rose above the cobbles. The floor consists of a layer of gray, gravelly clay. The only floor feature is a sub-floor pit, filled with unused cobbles, in the northernmost room. A large, flat cobble covers the pit. The use of the pit is unknown.

Comparison of Feature 6 with surface rooms excavated by Roberts (1930, Pl. 3) reveals closest similarities with his "A" village. The present structures, though not identical with Roberts' "A" village, are similar in that they have a cobble-base, jacal wall,in the absence of living features, and in the pattern of semicircular, non-contiguous room construction. Roberts dates the "A" village as the earliest of those excavated by him, and therefore, towards the beginning of Piedra Phase.

Resume

A series of stratified pit houses has been described in detail. Most of their features are comparable. Consistent features are: oval-to-circular-shaped plan; four-post, roof supports in a rectangular pattern; central, oval fire basin with adobe rim; south-oriented ventilator deflector; and a floor ridge between the fire basin and ventilator. All the pit houses appear to have been habitation units, the surface units being used for storage. No ceremonial unit is present at the site. Changes with the passage of time appear to be a decrease in house size and decrease in depth below the surface.

ARTIFACTS AND NON-ARTIFACTS

Items of material culture are of common occurrence at the site, especially from the trash filled pit houses. The major portion of the collection consists of potsherds, bone artifacts, and grinding stones, most of which were locally produced. Work in bone and clay is more advanced than work in stone. Since it is an open site, little perishable material is present; however, as a result of charring, part of a sandal has been preserved. Compilations of data on this collection are presented in Tables 8-10. Non-artifacts are, primarily, food bones.

Ceramics

Excellent samples of pottery (Table 8) were recovered, especially from the trash fill of Feature 1. General characteristics of the collection are an absence of whole vessels but a high proportion of locally produced wares. The types of pottery identified have all been described in Dittert, et al (1961, pp. 135-152), and are not repeated here. The more refined type breakdowns employed in the Martinez and Railroad Site collections were not available when the Serrano Site analysis was undertaken (see Chapter I).

Of the local pottery types, Rosa Gray accounts for 80 to 90 per cent of the total collection; Rosa Neckbanded, 4 to 5 per cent; and painted ware, 4 to 5 per cent. Trade wares account for about 4 per cent of the total, slightly more than half of the amount being plain ware. All the trade pottery is of types from the La Plata and Mesa Verde Districts, indicating that trade routes extended in that direction. The entire collection appears to date from late Rosa Phase and early Piedra Phase.

VESSEL FORMS

Vessel forms are all within the range described by Roberts (1930, pp.

83-109). Predominant forms are those of globular, wide-mouth, culinary vessels, seed jars, and hemispherical bowls. The predominant, painted-vessel form is the bowl. One Rosa Gray ladle, present in the fill of Feature 1 (Fig. 29), is of a form illustrated by Roberts (1930, Fig. 19f). Additional, whole vessels are two miniature jars, one of Rosa Gray, the other of Rosa Brown. These vessels (Fig. 29h-i) are similar to those described and illustrated by Roberts. However, the jar illustrated in Figure 29h, is a miniature seed jar, and, thus, represents an addition to the forms of miniature jars known from Piedra Phase. Dimensions of this seed jar are: height, 1.5 inches; diameter, 1.7 inches.

A common attribute of the pottery vessels is the presence of lugs and handles (Fig. 28a-g). The lugs and handles in this collection are within the range described by Roberts. All the handles are of the loop variety. Placement of loop handles, where this can be determined, is in a horizontal position on the vessels. Lugs are slightly more common than handles and are of three forms: a small, pointed variety; a wide, flat variety; and a rounded knob.

VESSEL DECORATION

Vessel designs from the Serrano Site do not amplify the known data from Piedra Phase because they are similar to those described by Roberts (1930, pp. 109-112). This fact obviates the necessity for a description here. Design elements that should be mentioned are zoomorphic figures. These designs are most frequently those of deer, but sometimes of other animals, such as birds (Fig. 28o). These figures occur, normally, on the interior of bowls, as repeated, isolated units, and most frequently on vessels of Rosa Black-on-White, glaze variety. The use of zoomorphic figures apparently became less prevalent during the later Piedra Phase, geometric designs were increasingly used.

An additional design element is noted in the basket impressions on the exterior of some of the Rosa Gray sherds (Fig. 28k, l). These imprints are of coiled baskets, and are the result of constructing the vessel within a basket.

DISCUSSION

The stratigraphic position of the basket-impressed sherds (Table 8) implies that this is an early trait, limited to Rosa Phase. Data from stratigraphy also suggest that the temporal position of Rosa Black-on-White, glaze variety, is one of overlap between Rosa Black-on-White and Piedra Black-on-White (Table 8). The period of overlap between dominance of Piedra Black-on-White and dominance of subsequent type, Arboles Black-on-White, is not present. The site probably was abandoned prior to this time.

Clay Artifacts

Artifacts of clay, other than potsherds are not common (Fig. 29). It appears that the full potential of the plasticity of clay had yet to be realized during the Piedra Phase. The modeling of clay was primarily confined to the pottery vessels described above.

PIPE (1)

One complete, tubular pipe is manufactured from a Rosa Brown paste, which has been slipped and, then, slightly polished. The pipe is cylindrical-to-conical in form. The bowl terminates abruptly in a small hole 0.1 inch in diameter, leading to the mouthpiece end of the pipe. Probably, this hole was formed by molding the clay around a small twig which burned out during firing. No evidence exists as to how the bowl was made. The only decoration is a small, straight groove, 0.9 inches in length, engraved around the circumference 0.5 inches from the large end of the pipe. Size: bowl diameter, 0.5 inches; bowl depth, 1.6

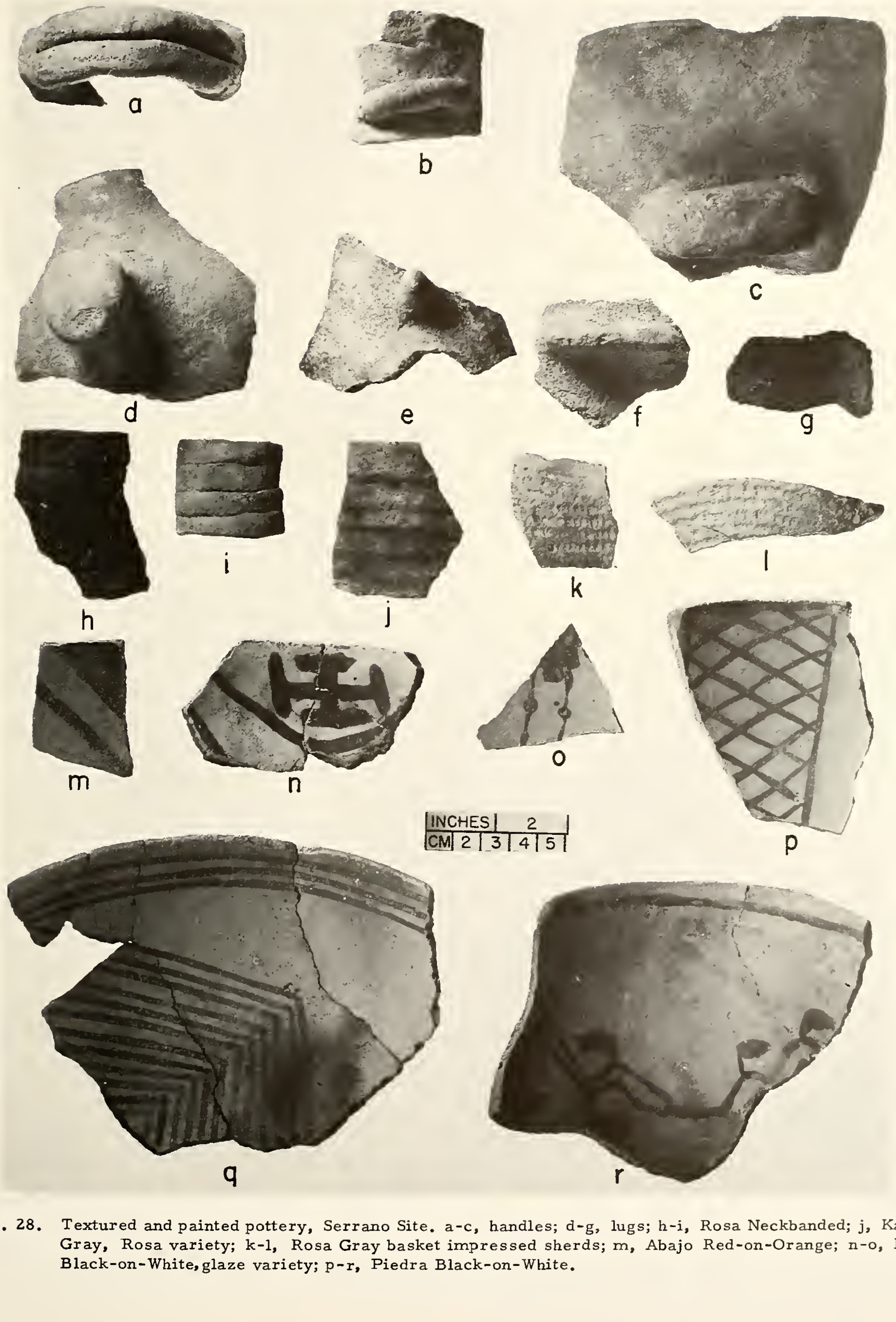

Fig. 28. Textured and painted pottery, Serrano Site. a-c, handles; d-g, lugs; h-i, Rosa Neckbanded; j, Kana'a Gray, Rosa variety; k-l, Rosa Gray basket impressed sherds; m, Abajo Red-on-Orange; n-o, Rosa Black-on-White, glaze variety; p-r, Piedra Black-on-White.

TABLE 9

OCCURRENCE OF ARTIFACTS BY PROVENIENCE, SERRANO SITE

ARTIFACTS	PROVENIENCE												
	F-1		F-2	F-3	F-4		F-5	F-6	F-7		F-8		TOTAL
	Fill	Floor	Fill	Fill	Fill	Floor	Floor	Fill	Fill	Floor	Fill	Floor	
Clay Artifacts													
Ladle	1	-	-	-	-	-	-	-	-	-	-	-	1
Pot	-	-	-	-	-	-	1	-	-	-	-	-	1
Miniature Pot	1	-	-	-	-	-	-	-	1	-	-	-	2
Pipe	1	-	-	-	-	-	-	-	-	-	-	-	1
Figurine	1	-	-	-	-	-	-	1	-	-	-	-	2
Sherd Disc	1	2	-	1	-	1	-	-	-	-	-	-	5
Whorl	3	1	-	-	-	-	-	-	1	-	-	-	5
Stone Artifacts													
Projectile point	1	-	1	-	-	-	1	-	-	-	-	-	3
Blade	3	-	-	-	1	-	-	-	-	-	-	-	4
Flake knive	3	-	2	-	3	-	-	-	-	-	-	-	8
Axe	1	-	-	-	1	-	-	-	-	-	-	-	2
Scraper	-	-	1	-	-	2	-	-	-	-	1	-	4
Hollow edge scraper	1	-	-	-	-	-	-	-	-	-	1	-	2
Chopper	3	-	-	-	1	2	-	-	-	-	-	1	7
Hammer	1	-	1	-	2	2	-	-	-	-	-	-	6
Core	4	-	1	-	2	-	-	-	-	-	-	-	7
Mano	8	2	2	-	-	-	-	1	-	1	-	1	15
Metate	16	-	3	-	3	-	-	-	-	-	-	-	22
Paint grinder	-	1	-	-	-	-	-	-	-	-	-	-	1
Stone ring	-	-	-	-	-	-	-	1	-	-	-	-	1
Cooking stone	-	-	-	-	-	-	-	-	-	-	1	-	1
Ground stone knife	1	-	-	-	-	-	-	-	-	-	-	-	1
Polisher	-	-	-	-	-	1	-	-	-	-	-	-	1
Palette	1	-	-	-	-	-	-	-	-	-	-	-	1
Abrader	1	-	-	1	-	-	-	-	-	-	-	-	2
Sandstone disc	-	-	-	-	1	-	-	-	-	-	-	-	1
Paint	1	-	-	-	1	-	-	-	-	-	-	-	2
Calcite crystal	-	-	-	1	2	-	-	-	-	-	-	-	3
Quartz crystal	-	-	1	-	-	-	-	-	-	-	-	-	1
Bone Artifacts													
Awls													
Type 1a	1	-	-	-	-	-	-	-	-	-	-	-	1
Type 1b	1	-	-	-	6	-	-	-	-	-	1	-	8
Type 1c	-	-	-	-	2	-	-	-	-	-	-	-	2
Type 1d	-	-	1	1	1	-	-	-	-	-	-	-	3
Type 1e	1	1	-	1	1	1	-	-	-	-	-	-	5
Type 1f	-	-	1	-	-	-	-	-	-	-	1	-	2
Worked bone	-	-	-	-	-	1	-	-	-	-	1	-	2
Needle	-	-	2	-	-	-	-	-	-	-	-	-	2
Tubular bead	1	-	1	-	-	-	-	-	-	-	-	2	4
Bird claw bead	-	-	-	1	1	-	-	-	-	-	-	-	2
Whistle	-	1	1	-	-	-	-	-	-	-	-	-	2
Antler flaker	-	-	-	-	1	-	-	-	-	-	-	1	2
Perishable artifacts													
Yucca sandal	1	-	-	-	-	-	-	-	-	-	-	-	1
Basket impression	-	-	-	-	-	-	-	-	-	-	-	2	2
TOTAL	58	8	18	6	29	10	2	3	2	1	6	7	150

inches; pipe diameter, 0.8 inches; pipe length, 2.0 inches (Fig.29j).

FIGURINES (2)

Two fragments of modeled, zoomorphic figurines are made from a Rosa Gray paste. The animals appear to be a dog and an owl. Both specimens are broken, less than half the original remaining. They are modeled with a hollow space in the middle of the body. The portions remaining are the posterior half of the dog, with the legs missing; and the anterior portion of the owl. Construction marks on the dog have been obliterated by the smoothing of the exterior. The owl was formed from a roll of clay by pinching one end into the form of an owl's head. Both of these figurines may have been used as handles on pottery vessels. Size: maximum height of dog, 1.4 inches; width, 1.2 inches; length, greater than 2.3 inches. Maximum width of owl, 1.7 inches; thickness, 1.1 inches; length, greater than 2.6 inches (Fig.29k-1).

SHERD DISCS (5)

The sherd discs recovered were made from broken potsherds by chipping them into a roughly circular form. The edges were then ground smooth. Sherd types represented are Rosa Gray, Abajo Red-on-Orange, and Cortez Black-on-White. One disc of Rosa Gray is decorated with crisscross, incised lines. The discs may have been used as gaming pieces or as the initial step in the manufacture of a whorl. Size: diameter, 1.2 - 2.0 inches (Fig. 29a-d).

WHORLS (5)

These artifacts are identical with the discs described above, except for the addition of a centrally placed hole, drilled from both sides of the artifact. As a result, the hole has a bi-conical cross-section. In one of the whorls, the hole is drilled from one side only. Sherd types represented are Rosa Gray and Piedra Black-on-White. These were probably used as spindle whorls. Size: diameter, 1.2 - 2.0 inches; hole diameter, 0.1 - 0.2 inches (Fig.29e-g).

DISCUSSION

Comparison of the clay artifacts from the Serrano Site with those from sites excavated by Roberts on Stollsteimer Mesa indicates more differences than similarities. Roberts found tubular (cloud-blower pipes) identical to the specimen described herein. Differences lie in the presence of the sherd whorls, sherd discs, and figurines, none of which did he find. Objects of this nature are present earlier than the Piedra Phase in the cultural tradition, as indicated by Rosa Phase collections from the Gobernador District, where pipes, whorls, discs, and animal figurines occur (Hall, 1944).

Stone Artifacts

Artifacts of stone are represented by ninety-four specimens, most of which were recovered from the trash fill of Feature 1. Stone materials used for the manufacture of tools occur, almost without exception, in the local gravels. The most commonly used tool stone is quartzite, representing 68.4 per cent of the samples collected (Table 10). The remainder of the materials in common use, in order of preference, are: fine-grained, igneous stone; quartzitic sandstone; chert; shale; and limestone. Only 15.3 per cent of the stone samples show evidence of use.

In the following section, artifacts will be discussed in the same order as they appear on Table 9. Where possible, these artifacts will be grouped into types, and described as such. Where this is not possible, the individual artifacts will be described.

PROJECTILE POINTS (3)

Two of the three projectile points recovered are grouped in a category

TABLE 10

OCCURRENCE OF LITHIC MATERIALS BY PROVENIENCE, SERRANO SITE (in per cent)

TYPE	LOCUS													
	F - 1 Fill		F - 1 Floor		F - 2 Fill		F - 2 Floor		F - 3 Fill		F - 4 Fill		F - 4 Floor	
	Used	Unused	Used	Unused	Used	Unused	Used	Unused	Used	Unused	Used	Unused	Used	Unused
Quartzite	7.0	61.4	2.3	74.4	8.2	52.0	12.5	75.0	12.5	62.5	15.7	47.3	12.9	64.5
Quartzitic ss	4.1	2.6	3.4	2.3	2.7	13.6	-	-	-	-	1.1	1.1	1.1	3.2
Jasper	.1	.5	-	-	1.3	-	-	-	-	-	-	-	-	1.1
Cherts	-	-	-	1.7	1.3	1.3	-	-	-	-	1.1	5.2	-	4.3
Chalcedony	-	-	-	-	-	2.7	-	-	-	-	-	-	-	-
Petrified Wood	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-
Igneous	.8	16.6	-	6.9	1.3	9.5	-	12.5	-	-	-	11.6	1.1	8.6
Obsidian	.3	.1	-	-	-	-	-	-	-	-	-	-	-	-
Shale	1.2	.1	-	2.3	-	-	-	-	-	-	-	1.1	-	-
Limestone	-	1.7	-	2.3	-	-	-	-	-	-	-	-	-	-
Sandstone	.5	2.6	-	4.6	1.3	2.7	-	-	12.5	-	2.2	11.6	-	2.2
Conglomerate	.3	-	-	-	1.3	-	-	-	-	-	-	-	-	-
Calcite	-	-	-	-	-	-	-	-	-	12.5	-	-	-	-
Limonite	.1	.1	-	-	-	-	-	-	-	-	-	-	-	-
Hematite	-	-	-	-	-	-	-	-	-	-	-	-	1.1	-
Siltstone	.1	-	-	-	-	-	-	-	-	-	-	-	-	-
Tufa	-	-	-	-	-	-	-	-	-	-	-	1.1	-	-
Quartz	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-
TOTAL PER CENT	100.1		100.2		100.5		100.0		100.0		100.2		100.0	
TOTAL SPECIMENS	589		86		74		8		8		95		93	

TYPE	F - 5 Fill		F - 6 Floor & Fill		F - 7 Fill		F - 8 Fill		F - 8 Floor		Total Specimens	Total Per Cent
	Used	Unused	Used	Unused	Used	Unused	Used	Unused	Used	Unused		
Quartzite	9.5	52.4	27.8	27.8	11.1	55.6	23.8	57.1	14.3	50.0	708	68.4
Quartzitic ss	-	9.5	16.7	-	-	-	4.8	4.8	7.1	-	70	6.8
Jasper	-	-	-	-	-	-	-	-	-	-	7	.7
Cherts	-	-	-	5.6	-	-	-	-	-	-	14	1.4
Chalcedony	-	-	-	5.6	-	-	-	-	-	7.1	4	.4
Petrified Wood	-	-	-	-	-	-	4.8	-	-	-	5	.5
Igneous	-	4.8	-	16.7	-	11.1	-	-	7.1	14.3	142	13.7
Obsidian	4.8	-	-	-	-	-	-	-	-	-	5	.5
Shale	-	9.5	-	-	-	-	-	-	-	-	13	1.3
Limestone	-	-	-	-	-	11.1	-	4.8	-	-	14	1.4
Sandstone	-	4.8	-	-	-	11.1	-	-	-	-	43	4.2
Conglomerate	-	-	-	-	-	-	-	-	-	-	3	.3
Calcite	-	-	-	-	-	-	-	-	-	-	1	.1
Limonite	-	-	-	-	-	-	-	-	-	-	2	.2
Hematite	-	-	-	-	-	-	-	-	-	-	1	.1
Siltstone	-	4.8	-	-	-	-	-	-	-	-	2	.2
Tufa	-	-	-	-	-	-	-	-	-	-	1	.1
Quartz	-	-	-	-	-	-	-	-	-	-	1	.1
TOTAL PER CENT	100.1		100.2		100.0		100.1		99.9		—	100.4
TOTAL SPECIMENS	21		18		9		21		14		1036	—

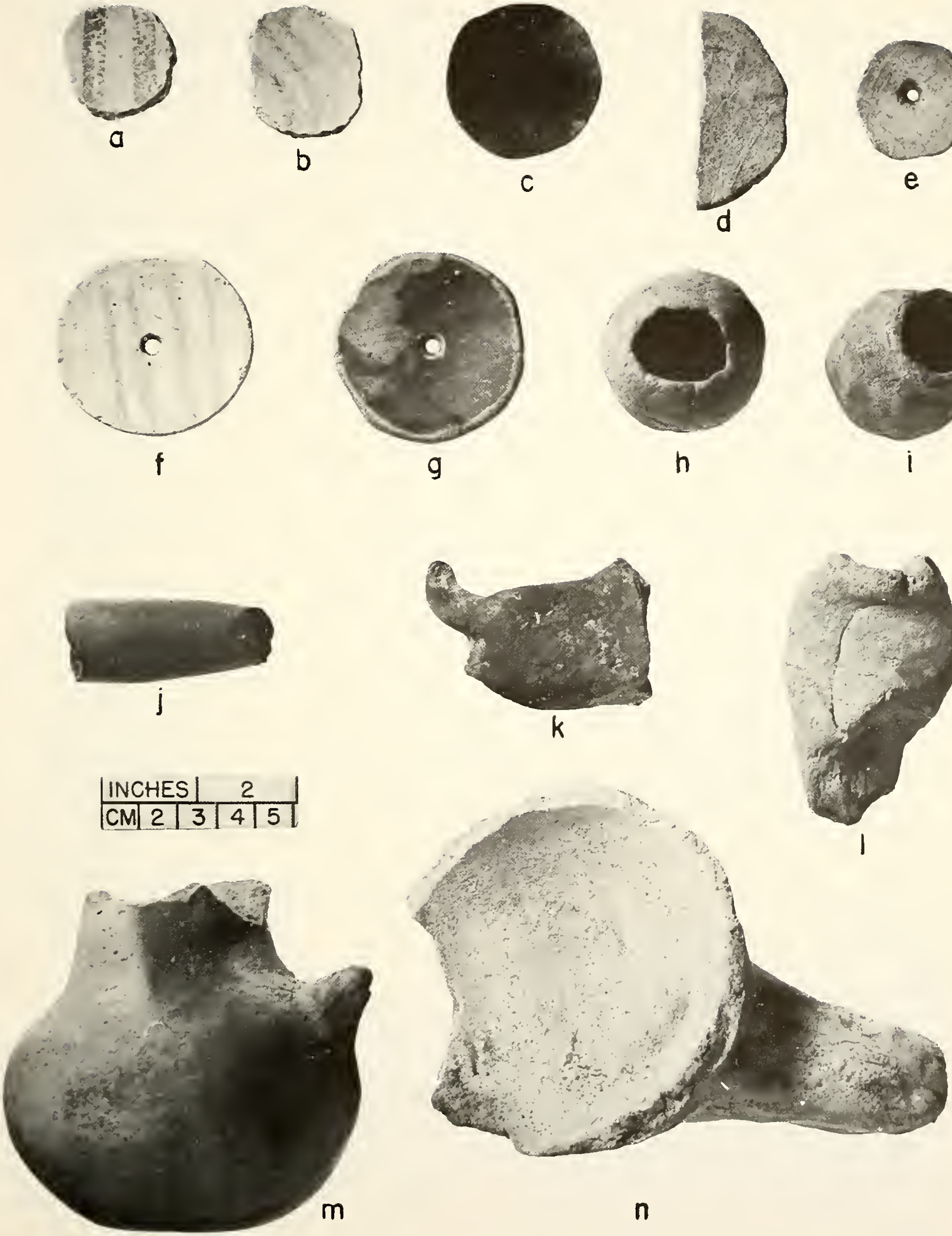

Fig. 29. Clay artifacts, Serrano Site. a-d, sherd discs; e-g, whorls; h-i, miniature pots; j, pipe; k, dog figurine; l, owl (?) figurine; m, Rosa Gray pot; n, Rosa Gray ladle.

which may be considered as a tentative type. This is the category described as Corner Notch, Straight Stem (Dittert, et al, 1961, p. 172). The characteristics of these points are: parallel-sided stem, produced by corner notching; stem narrower than blade; blade triangular having straight-to-concave edges; edges infrequently serrate; straight-to-convex base; sharp, oblique tangs; and thin, lenticular cross-section. Shaping is by pressure-chipping. Both specimens have the stem broken off. Material used in the manufacture of these two points is obsidian and pedernal chert. Size: length, 1.1 and 1.3 inches; width, 0.4 and 0.5 inches; thickness, 0.1 inches (Fig. 30a-b).

The third point from the collection may be included in the category Side Notch, Broad Spur (Dittert, et al, 1961, p. 171). However, the range of variation within this category is such that Side Notch, Broad Spur projectile points cannot be considered a true type. Attributes of the point are: triangular blade; stem formed by side-notching; expanding stem; stem wider than blade; slightly convex base; thick, lenticular cross-section; and a broad spur. The material is quartzite. Size: length, 0.9 inches; width, 0.5 inches; thickness, 0.2 inches (Fig. 30c).

BLADES (4)

Because none of the blades recovered from the site are complete; they cannot be assigned to a type. Two of them were made from primary flakes of quartzite by percussion-flaking. One of the latter is flaked to both faces, the other to one face. The other two blades are of fine quality stone, jasper and chert. Pressure-chipping was performed on both faces, along one edge to produce a low-angle, sharp-cutting edge. In spite of the fragmentary condition of three of the specimens, it is possible to determine that they are of the "backed" variety or style of blade. Size: before being broken, they probably ranged from 2.0 - 3.0 inches in length; width, 0.9 - 1.5 inches; thickness, 0.2 - 0.4 inches (Fig. 30d-e).

FLAKE KNIVES (8)

Primary flakes, utilized as knives, may be divided into two categories: modified (Fig. 30f-g) and unmodified (Fig. 30h). The modified flakes possess the following attributes: sub-triangular form; scalene-triangular cross-section; and modification, consisting of pressure chips removed from one or both faces, along the thinnest edge of the flake. The steep edge of the knife would have facilitated the holding of the tool in a fashion identical to that used for "backed" blades. The materials are jasper and chalcedony.

The one unmodified, primary flake also has a scalene-triangular cross-section. One of the thin edges of the flake shows dulling from use. The flake was selected because of its thin cross-section and naturally sharp edges. The material is quartzite. Size: length, 1.5 - 2.5 inches; width, 0.8 - 1.5 inches; thickness, 0.3 - 0.5 inches.

AXES (2)

Axes recovered are made from quartzitic, river cobbles. The axes are sub-rectangular in form, having two side notches. They were manufactured from flat cobbles by percussion-flaking from both faces. A portion of the original cortex remains on each face. Notches were formed by flaking, and the ridge between the resulting flake scars has been pecked smooth. The axes are biconvex in the anterior-posterior cross-section; and the transverse cross-section is oval. The poll is wider than the bit. In one axe, both the bit and poll possess a sharp cutting edge; the second axe retains the original cortex of the cobble as the poll. Size: length, 6.1 and 8.7 inches; width, 3.5 - 4.3 and 3.6 - 4.8 inches; thickness, 1.6 and 1.7 inches; width of notches, 0.2 inches; depth of notches, 0.5 inches (Fig. 30t).

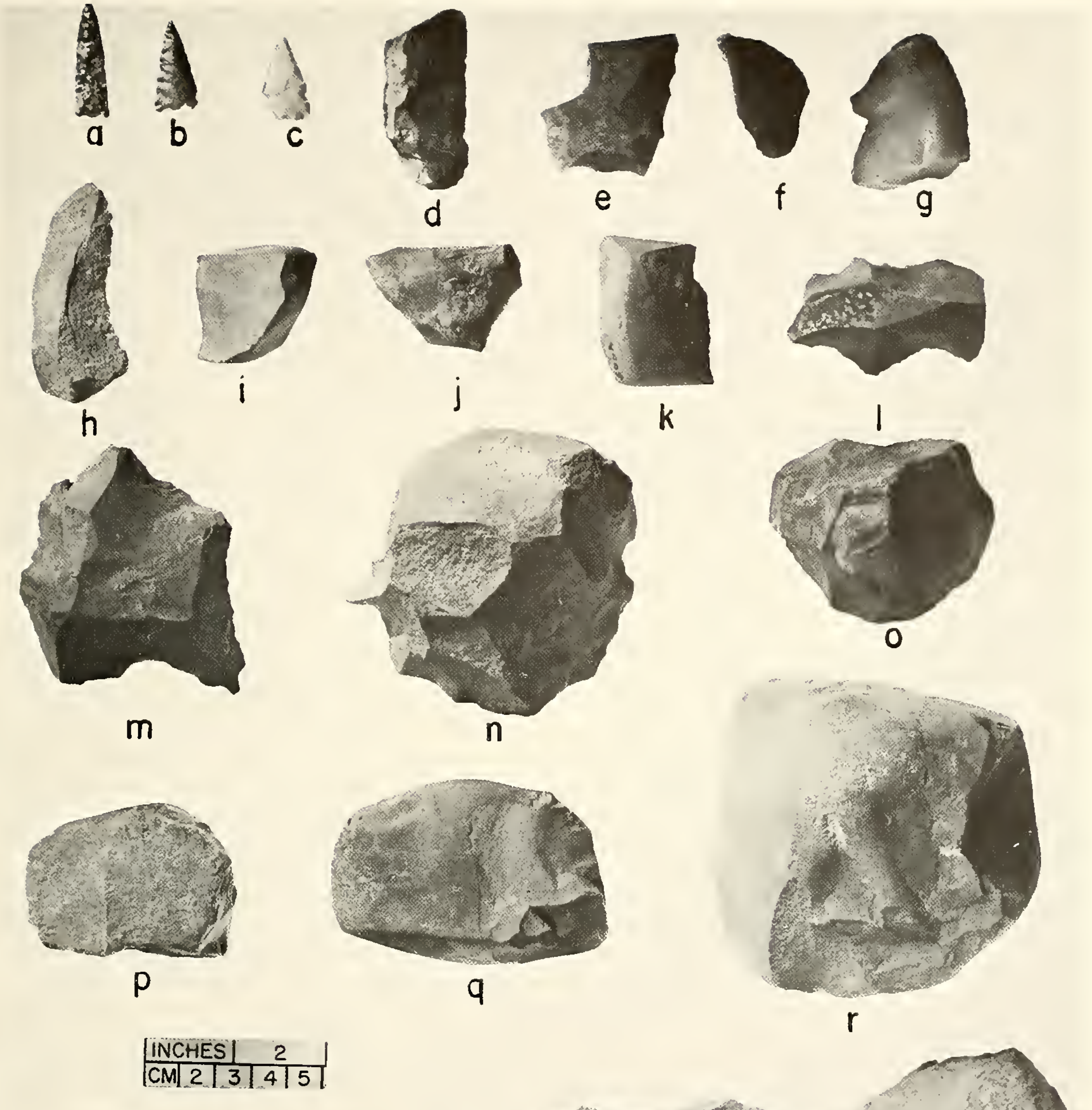

Fig. 30. Chipped and flaked stone artifacts, Serrano Site. a-c, projectile points; d-e, blades; f-g, modified flake knives; h, unmodified flake knife; i-k, flake end scrapers; l-m, hollow edge scrapers; n-o, cores; p-q, hammers; r-s, choppers; t, axe.

SCRAPERS (4)

The scrapers recovered may be classified in one category. They possess enough attributes in common to be considered as a tentative type, termed Flake, End Scrapers. Selected, primary flakes that have been utilized for scraping, they are unmodified, primary flakes, possessing a straight, high-angle edge, normally, at right angles to the direction of the blow that produced the flake. This edge is on the opposite end of the flake from the bulb of percussion, and tends to be parallel to the striking platform. The resultant edge, available for use, has a very high angle. All are quartzite, except one of petrified wood. Size: length, 1.0 - 1.5 inches; width, 1.1 - 1.6 inches; thickness, 0.4 - 0.6 inches (Fig.30i-k).

HOLLOW-EDGE SCRAPERS (2)

These scrapers are made from quartzite, primary flakes, of a thick, prismatic form which have been modified by percussion-flaking to one face to produce a high-angle, concave edge. All the flaking has been to the upper face of the flake. No other modification is present. Size: length, 2.1 and 3.1 inches; width, 1.3 and 2.4 inches; thickness, 0.5 and 0.7 inches (Fig.30 l-m).

GROUND-EDGE SCRAPER (1)

One scraper, not tabulated in Table 9, is a large section of a flat, oval, river cobble of basalt. The upper face exhibits the original cortex of the cobble. The lower face is flat, and is split along a natural cleavage. The artifact is triangular in plan view. Modification consists of the removal of a few flakes from the lower face by percussion and the smoothing of this face by grinding. One edge of the artifact is naturally sharp, and has been used in scraping. The specimen is broken, and may originally have been longer by an undetermined amount. Size: length, 4.0 inches; thickness, 0.7 inches; width, 3.1 inches.

CHOPPERS (7)

This group of artifacts presents a considerable range of variation. It is not possible, with such a small sample, to segregate types. The choppers were made from oval, flat-to-semi-spherical, river cobbles. Modification consists of percussion flaking to form a sinuous cutting edge along one-third to one-half the circumference. This flaking is to both faces (5 examples), or to only one face (2 examples). A portion of the original cortex remains on all specimens. Basic attributes appear to be: a convenient size for holding in the hand, one rounded side to fit the palm, and an opposite, strong cutting edge. Size: length, 3.6 - 4.9 inches; width, 2.4 - 3.1 inches; thickness, 1.3 - 2.8 inches (Fig.30r-s).

HAMMERS (6)

Small, oval cobbles have been selected and prepared by percussion-flaking for use as hammers. Modification consists of flaking to both faces, which resulted in the formation of a ridge between the flake scars. This ridge is battered through use in pounding. These artifacts were probably used in the manufacture of primary flakes. The hammers may constitute a true type, although this is yet to be determined. One specimen may be a reused core. The flake scars extend over one-third to one-half the surface, the remainder retaining the original cortex. The weights on all the specimens are similar. Size: length, 2.2 - 3.3 inches; width, 1.7 - 2.1 inches; thickness, 1.4 - 1.7 inches (Fig.30p-q).

CORES (7)

The cores recovered may be divided into two groupings; those flaked to one face (4 examples), and those flaked to multiple faces (3 examples). Cores flaked to one face tend to be plano-convex in cross-section, having a rounded polyhedron form. Both river cobbles and large, primary flakes have been modified in this fashion. A portion of the original cortex remains on one-fourth to one-half of the surface.

Cores flaked to multiple faces tend to be spherical in form, having a series of interlocking ridges around the circumference. Little of the original cortex remains. The size of the cores is quite variable. The largest and smallest cores are of the flaked-to-one-face variety, while the multiple-flaked cores are intermediate in size. Size: length, 2.5 - 5.1 inches; width, 2.0 - 5.1 inches; thickness, 0.9 - 3.1 inches (Fig.30n-o).

MANOS (15)

The predominant form of mano is the Two-hand, Trough (Fig.31m) described by Dittert, et al, (1961, p.188). No additional attributes are evident. Another mano of distinctive style (Fig.31 l) was found in the fill of Feature 1. This is of the form described as One-hand, Shaped by Dittert, et al, (1961, p.188). This specimen exhibits the same characteristics as described above. The present specimen is of the bi-face variety.

METATES (22)

The metates are of a one-end, closed-trough form, though two varieties were recovered. One possesses a deep, U-shaped trough; the other, a well defined, pecked area, which is virtually flat. These two varieties probably represent the two opposite-end stages of wear. Typical attributes of this form are: block is a selected river boulder; rectangular in form and normally unmodified, except for pecking of grinding surface. The anterior-posterior axis is concave, the deepest point being near the open end of the trough. The transverse axis varies from U-shaped to rectangular in profile, with rounded corners. The Two-Hand Trough mano was used in a reciprocal motion in this form of metate. Most of the specimens are fragmentary; all are within the size range published by Dittert, et al, (1961, pp.188-189).

PAINT GRINDER (?) (1)

This artifact is made from a naturally smooth cobble, rectangular in outline, with slightly smoothed edges, and having a bi-concave cross-section. A smear of red paint, probably hematite, is centrally located on one face. This stone probably was used as a paint grinder. Size: length, 5.2 inches; width, 3.35 inches; thickness, 1.8 inches; diameter of paint area, 2.4 inches.

STONE RING (1)

A problematical artifact, fashioned from an oval, cobble of quartzitic sandstone, is pecked slightly around the circumference, and ground on one face. Following this shaping, a central depression was pecked on each face to the extent that a hole through the stone was formed. Use of the stone ring is unknown but the depressions show only evidence of pecking, not grinding, which suggests an intentional form, rather than the end result of wear. The specimen is fragmentary. Size: diameter, 5.4 inches; thickness, 1.1 inches; diameter, 3.7 inches (Fig.31k).

COOKING STONE (?) (1)

A spherical ball of quartzitic sandstone recovered shows evidence of burning. A river cobble that was used without alteration, it may have been employed for stone boiling or some other form of cooking. Size: diameter, 2.3 inches (Fig.31j).

GROUND STONE KNIFE (1)

This is a flat, oval-shaped stone, ground on both faces. The grinding resulted in the formation of a sharp edge around the circumference of the stone. The stone is bi-convex in cross-section.

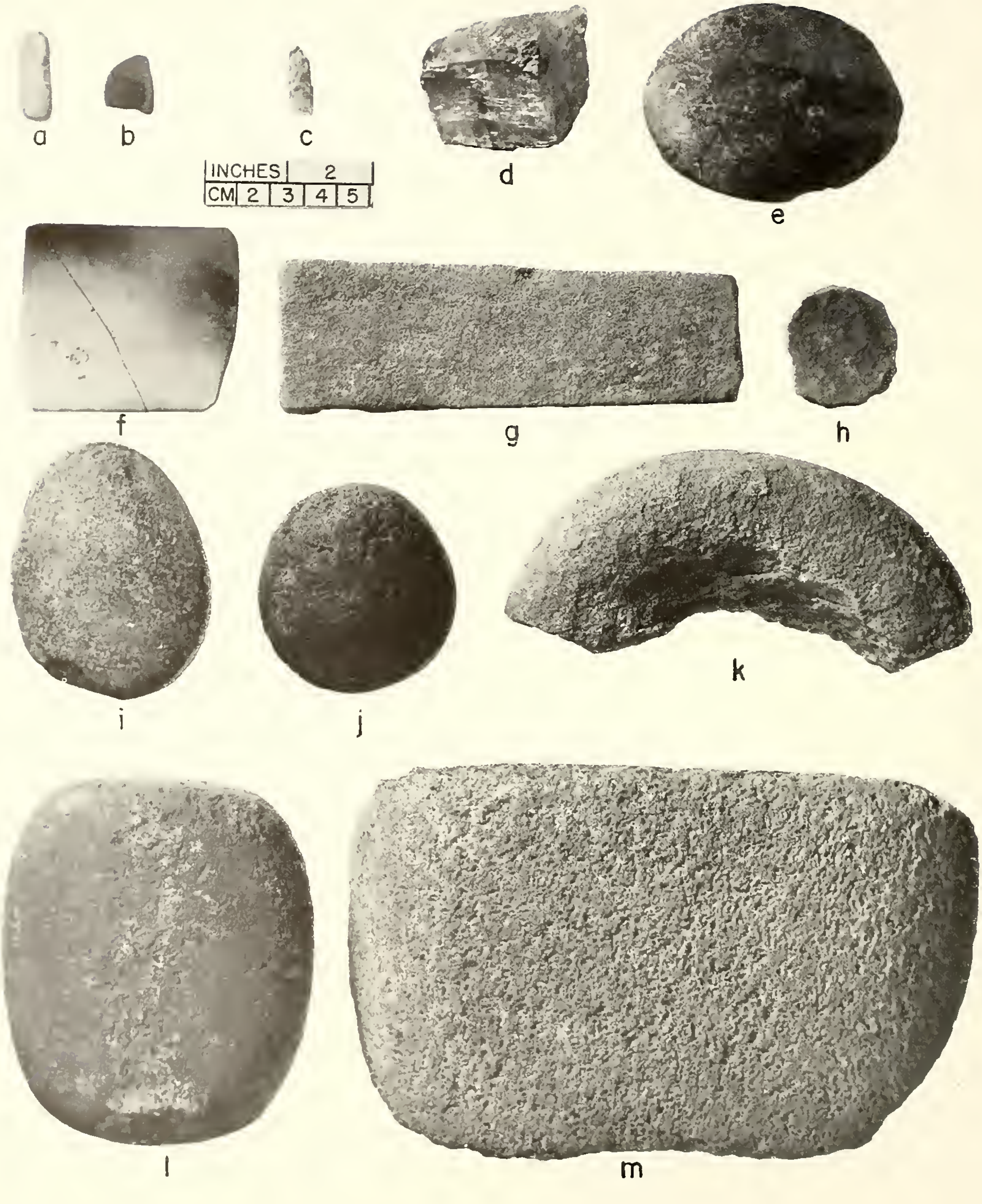

Fig. 31. Ground stone artifacts, Serrano Site. a, hematite; b, limonite; c, quartz crystal; d, calcite crystal; e, ground stone knife; f, pallette; g, abrader; h, sandstone disc; i, polisher; j, cooking stone (?); k, stone ring; l, one-hand shaped mano; m, two-hand trough mano.

Striations suggest that the grinding was done with a reciprocal motion, accompanied by shifting the stone in the hand to achieve a smooth, allover-ground surface, rather than one with facets. The edge formed was used for cutting. Size: length, 3.1 inches; width, 2.4 inches; thickness, 0.4 inches (Fig.31e).

POLISHER (1)

A small, flat, oval, river pebble of basalt that was recovered has been used as a polisher. The only modification is the result of use. Wear is evident on both faces, although no striations are visible. The type of polishing that was done is not known. Possibilities include the polishing of floors, walls, or perhaps pottery vessels. Size: length, 3.1 inches; width, 2.3 inches; thickness, 0.7 inches (Fig.31i).

PALETTE (1)

A palette of ground siltstone was recovered from the fill of Feature 1. It is rectangular in form, and has a thin, rectangular profile. The four corners have been ground off at a 45 degree angle to the sides. Striations on the two faces indicate grinding was in a reciprocal motion. Originally, the palette was longer, as indicated by the regrinding of one edge; and it was reused following the break. It is possible that it was used as a paint palette. The source of the stone is not known, but probably it is not from within the Navajo Reservoir. Size: length, 2.6 inches; width, 2.2 inches; thickness, 0.1 inches (Fig.31f).

ABRADERS (2)

Recovered rectangular pieces of tabular sandstone have been smoothed by the grinding of all edges and both faces. They may have been used for abrading, or as paint palettes. One specimen is fragmentary. Size of the complete specimen: length, 5.4 inches; width, 1.7 inches; thickness, 0.4 inches (Fig.31g).

SANDSTONE DISC (1)

A piece of recovered sandstone had been ground smooth on both faces. The edge had been flaked to an oval form; then ground slightly. In cross-section, the artifact is a thin, flat rectangle. It was perhaps used as a counter of some type. Size: length, 1.4 inches; width, 1.3 inches; thickness, 0.2 inches (Fig. 31h).

PAINT (2)

Small pieces of recovered stone were probably used for paint. One is of hematite; and the other, limonite. Both specimens are small, oval pebbles that are striated from having been ground on all faces. Size: length, 0.7 and 1.5 inches; width, 0.5 and 0.6 inches; thickness, 0.1 and 0.3 inches (Fig.31a-b).

CALCITE CRYSTALS (3)

These crystals show no modification, and their use is unknown. However, they were definitely brought to the site by humans, and probably formed a portion of a medicine kit, or were raw material for ornaments. Size of largest specimen: length, 1.4 inches; width, 1.2 inches; thickness, 1.0 inch. The others are much smaller (Fig.31d).

Caches

Two caches, or groups, of associated objects, were found. One of these consists of eight unused flakes of quartzite, which appear to have been struck from the same core. These may have been in a perishable container, which has since decayed. The flakes may have been raw material for tool manufacture, or may have been kept for use as they were. The cache was found on the floor of Feature 4. Size of flakes: length, 1.5 inches; width, 0.7 inches; thickness, 0.2 inches.

The second group of associated artifacts was found in the fill of Feature 2. It consists of two bone needles; one worked,waste, bone fragment; a flake knife; a projectile point; and a quartz crystal. These artifacts all lay together in the fill. It is difficult to determine the reason for their association because the cache included utilitarian and non-utilitarian objects, plus a wast bone fragment. This cache does not appear to be one of ceremonial gear. Possibly it is a woman's sewing kit, or it could be fortuitous association. All the artifacts, except for the quartz crystal, are described elsewhere in this paper. The crystal is an unworked crystal of unknown use. Size: length, 0.9 inch; width, 0.3 inch; thickness, 0.2 inch.

Bone Artifacts

Artifacts of bone are fairly common, being represented by thirty-six examples. By far the most numerous bone tools are awls of types similar to those from Pecos described by Kidder (1932, pp. 195-271). A classification, utilizing Kidder's terminology, is employed here.

All the methods of manufacture represented have been described by Kidder (1932, pp. 199-200). The primary methods utilized are those of longitudinal and transverse sawing and breaking, and subsequent grinding.

AWLS (22)

Type 1. Mammal Leg Bone
- a. Head of bone intact (Fig. 32p)
- b. Head unworked, except by original splitting (Fig. 32k-o)
- c. Head partly worked down (Fig. 32u-v)
- d. Head wholly removed (Fig. 32w-y)
- e. Splinter (Fig. 32s-t)
- f. Unclassifiable awl tips

An exception to the descriptions by Kidder is found in the splinter awl from the floor of Feature 1 (Fig. 32t). This specimen has been modified by grinding of the edges and butt. This form is different from those at Pecos, where splinter awls were unmodified, except for the grinding of the tip.

Principal bones utilized for awl manufacture are the metapodial and tibia of deer, the ulna and radius occasionally being utilized. The tips of the awls exhibit all the forms illustrated by Morris and Burgh (1954, Fig. 32). The most common points are long, slender, and sharp, corresponding to Morris and Burgh's Types f, g, and k.

The collection from the Serrano Site agrees closely in type with the Piedra Phase bone material excavated by Roberts (1930, pp. 144-147). The only difference between the two collections is that the bone work obtained by Roberts exhibits greater variety, the ulna awls and deer skull splinter awls being of fairly common occurrence. It is likely that additional excavations in the Navajo Reservoir District will provide specimens of these types.

The provenience of the awls suggests that all forms were in use at the same time, no temporal significance being discernible between any of the types represented. The greater number of awls present in Feature 4 is probably the result of that structure being trash-filled. Size: length, 2.6 - 10.0 inches; width, 0.4 - 1.5 inches; thickness, 0.2 - 0.7 inches.

WORKED BONE (2)

Fragments of mammal long bones are the waste material from the manufacture of awls. These fragments were split from the original bone by longitudinal cutting and breaking. The entire fragment was then ground along the edges and sides. The pointed end was cut off by transverse sawing and breaking. The

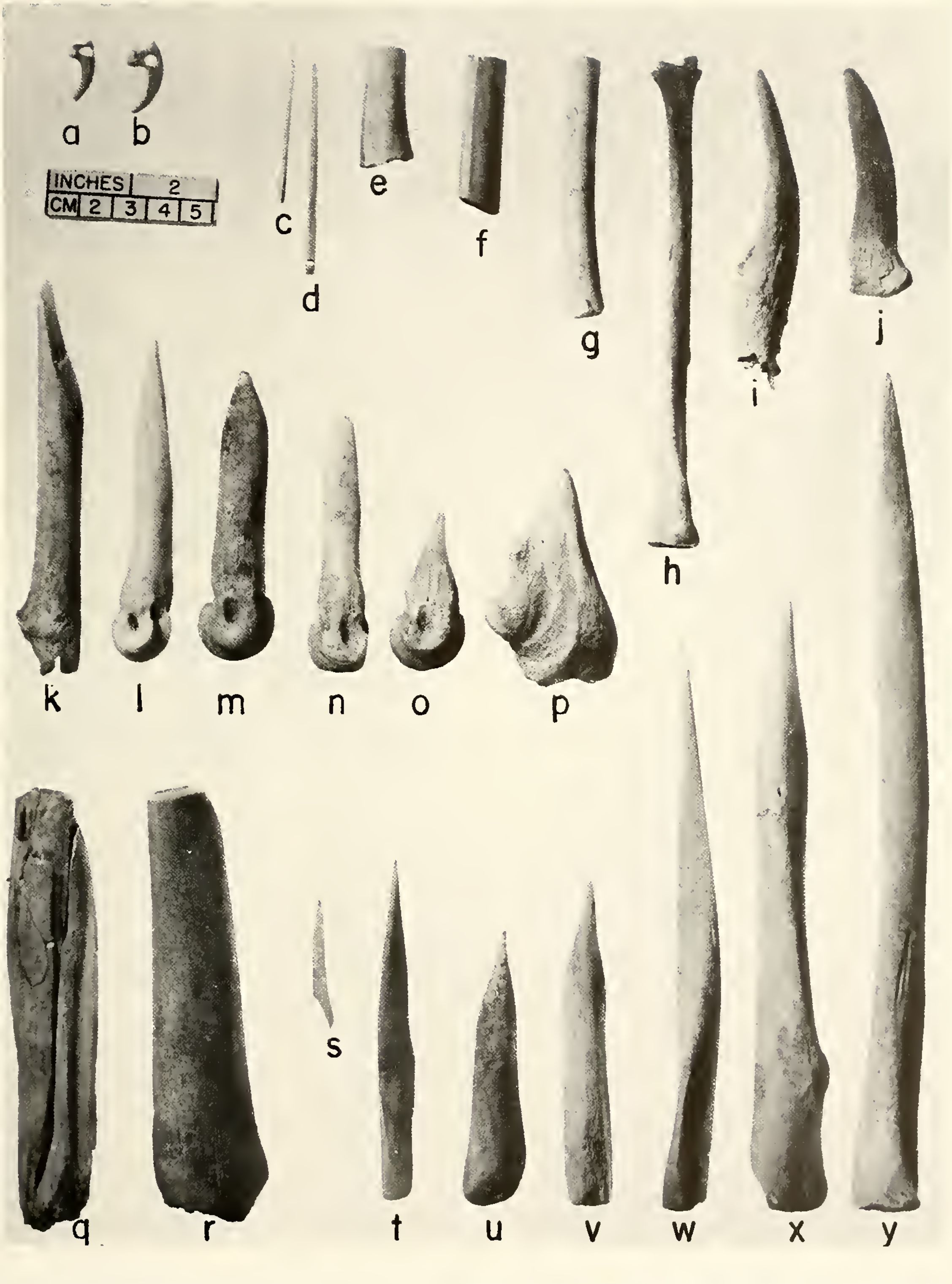

Fig. 32. Bone artifacts, Serrano Site. a-b, bird claw beads; c-d, needles; e-g, tubular beads; h, whistle (?); i-j, antler flakers; k-o, awls, Type 1b; p, awl, Type 1a; q-r, worked rejects; s-t, awls, Type 1e; u-v, awls, Type 1c; w-y, awls, Type 1d.

resulting awl would have been of Type 1-d. Discarded butt ends are the specimens discussed here. Size: length, 5.2 and 5.3 inches; width, 1.1 and 1.3 inches; thickness, 0.6 and 0.8 inches (Fig. 32q-r).

NEEDLES (2)

These artifacts are part of the cache from the fill of Feature 2, discussed above. They were formed by the grinding of a splinter of bone until all vestiges of the original cortex were removed. The finished artifacts are round in cross-section in the anterior portion and grade to a rectangular cross-section toward the base. A short distance (0.1 inches) from the base, a bi-conical hole (0.04 inches in diameter) has been drilled. Size: length, 1.9 and 2.7 inches; diameter, 0.1 and 0.2 inches (Fig. 32c-d).

TUBULAR BEADS (4)

These specimens are a portion of the shaft of a bird or small mammal long bone. The method of manufacture was to cut off both articulating ends of the bone by transverse sawing, thus leaving a short tubular section. Additional modification consisted of grinding the ends smooth. No designs are present. Size: length, 1.4 - 3.1 inches; diameter, 0.3 0.5 inches. (Fig. 32e-g).

BIRD CLAW BEADS (2)

Large bird claws (of the size of a hawk or owl) have been drilled for suspension. The holes are cylindrical, and it is not known whether they were drilled from one or two sides. No other modification is evident. Size: length, 0.7 and 0.9 inches; diameter of holes, 0.2 inches (Fig. 32a-b).

WHISTLES (?) (2)

Whistle specimens (one complete and one fragmentary) were made from the tibia of a jackrabbit. The complete whistle has a small hole (0.2 inches in diameter) drilled in the anterior face of the shaft near the distal end of the bone. The condyles of the proximal end have been cut off to form a mouthpiece. The only other preparation was the grinding of the proximal end.

These specimens are similar to the one illustrated by Roberts, and were probably used as whistles (Roberts, 1930, Pl.43a). However, it has not been possible to produce a sound from the examples. Two explanations appear likely at this time: the specimens were not finished and were thrown away before being completed; or, another part of them has since been lost.

An alternative use as tinklers has been suggested by O'Bryan (1950, p. 87). He reports a specimen that possesses a knotted string passed through it, which could have been used to secure it to a garment. Size of the complete specimen: length, 5.9 inches; diameter, 0.3 inches (Fig. 32h).

ANTLER FLAKERS (2)

These portions of antler are short tines, probably those of deer. One tine has a portion of the skull at the base, and appears to be the entire antler of a spike buck. The other is the tip of a larger tine. The only modification has been the formation of a flat, wear facet on the tip. Size: length, 2.9 - 4.0 inches; diameter, 0.5 - 0.6 inches (Fig. 32i-j).

DISCUSSION

Artifacts of bone are common, and could have been used for basket weaving, leather punching, making of music, ornamentation, and the manufacture of stone tools. Comparason with Piedra Phase bone work, described by Roberts, reveals the same complex. The only difference is that Roberts recovered a wider variety of artifacts than was recovered at the Serrano Site.

Perishable Artifacts

Though the site is an open one, fortunately some perishable artifacts have been preserved. Two specimens are available for analysis. These include a portion of a sandle, preserved through charring, and two impressions in adobe of a basket.

YUCCA SANDAL (1)

Three fragments, which appear to belong to the same sandal were recovered. Their combined size represents no more than 10 to 15 per cent of a normal, adult-size sandal. A portion of the selvage and some of the body are preserved, but no knots or ties. The method of manufacture is an over-two, under-two twill. The material is split yucca, and the fineness of the elements suggests the possibility that the material is narrow-leaf yucca. No dimensions are determinable, except the thickness, 0.1 - 0.15 inches.

BASKET IMPRESSIONS (2)

The imprint of a basket is very faint in a piece of adobe. As a result, it is difficult to be certain of the technique of manufacture. The impressions are definitely of close-coiled basketry, probably with an un-interlocking stitch. There are approximately five coils, and ten to eleven stitches per inch. The type of basketry appears to be the same as that represented by the basket-impressed potsherds. The specimens are fragmentary, and it is difficult to determine the original form of the basket. The largest specimen is 2.5 inches in width, and exhibits neither a starting knot nor selvage.

Non-Artifactual Data

ANIMAL BONES

Animal bones were present in the units excavated, except in Features 6, 7,

TABLE 11

OCCURRENCE OF IDENTIFIED BONES BY PROVENIENCE, SERRANO SITE

MAMMALS*	F-1 Fill	F-2 Fill	F-3 Fill	F-4 Fill	F-4 Floor	F-5 Floor	TOTAL
Canis - dog	5?	-	1	-	-	-	1+ 5?
Castor cf canadensis - beaver	3	-	-	1	-	-	4
Homo - man	-	-	-	-	-	3 ?	3 ?
Lepus - jackrabbit	7	2	1	10	3+4?	-	23+4?
Neotoma - wood rat	-	-	-	1	-	-	1
Odocoileus - deer	-	-	1	1	3+4?	-	5+4?
Odocoileus - deer or sheep	2?	2?	-	1?	-	-	5?
Sylvilagus - cottontail	-	1	1	2	13	-	17
Taxidea - badger	-	-	-	-	1	-	1
Urocyon - fox	-	-	1	-	-	-	1
Ursus - bear	-	-	-	2?	1?	-	3?
BIRDS **							
Accipter gentiles - goshawk	2	-	-	-	-	-	2
Buteo jamaicensis - red-tailed hawk	2	-	-	-	-	-	2
Meleagris gallopavo - turkey	3	-	-	1	-	-	4
Unidentified	4	1	-	8	6	-	19
TOTAL	28	6	5	27	35	3	104

?, Specimen tentatively identified to genus.

*, Identification by Richard B. Forbes of the Department of Biology, University of New Mexico, Albuquerque, New Mexico.

**, Identification by Lyndon L. Hargrave of the Southwest Archaeological Center, Globe, Arizona.

and 8. Bones occurred in a higher frequency in those features that were trash-filled (Table 11). Identifiable wild mammals include: beaver, jackrabbit, wood rat, deer, cottontail, badger, fox, and bear. All these are native to the area today, with the possible exception of the bear (Dittert, et al, 1961, pp. 30-31).

Wild birds include the goshawk, red-tailed hawk, and turkey. These species are also present in the area today. The turkey is more typical of the Transition Zone, the lower border of which is within a mile or so of the site. Domesticated animals are limited to the dog (tentatively identified).

Not enough bones were recovered to constitute a good sample; however, some interpretation as to use can be made. The bones appear to be randomly distributed, no preference being apparent for specific body parts. This suggests that, with the possible exception of deer, the entire animal was brought to the site.

PLANT REMAINS

Plant remains from the excavations include specimens of juniper (Juniperus sp.), pine (Pinus ponderosa), and tentative identifications of narrow-leaf yucca (Yucca glauca Nutt.). These species are present at the site, except for pine trees, which occur at a slightly higher altitude, within a mile or so of the site.

PALEOECOLOGY

Ecological interpretations derived from the presence of mammals, birds, and plants, identified to species, indicate that the environment at the time the site was occupied was almost identical to that of today.

CHRONOLOGY

Stratigraphic Reconstruction

The two earliest pit houses at the site appear to be Features 3 and 4 which may have been occupied simultaneously Following occupation of these two houses, Features 1 and 8 were constructed. The appearance of Piedra Black-on-White, on the floor of Feature 1, suggests that this structure may have been occupied longer than Feature 8. Because the architecture of Features 1 and 8 is almost identical, these houses are probably contemporaneous in part. Following abandonment of Features 1 and 8, the occupation pattern is reduced to one pit house, Feature 7, followed by Feature 5. The construction and use of the surface units (Feature 6) probably is associated with this later occupation, although correlation with a specific pit house is impossible.

The above interpretation assumes a contemporaneous occupation of two pit houses during the early part of the habitation at the site, a single pit house and the surface units being in use late in the occupation. This pattern of occupation presumes a fairly uniform population through time.

The temporal relationship of the surface units is difficult to establish. The sherd sample of thirty-four Rosa Gray and one Rosa Black-on-White, glaze variety, is not sufficiently specific to relate the construction and use of these rooms to the occupation of a particular pit house. It would appear, from the scant remains of the surface rooms and the absence of any rebuilding of these structures, that they were in use for only a short period of time. This use may be placed towards the end of the pit house occupation, corresponding to the Anasazi tradition of a shift from subsurface to surface occupation. A temporal assignment, on the basis of sherds, would suggest that the occupation was towards the beginning of the Piedra Phase.

Temporal Position of Features

Analysis of the ceramics indicates that the types date from A.D. 700-900, a clustering occurring in the interval A.D. 800-900 (Dittert, _et al_, 1961, Fig. 37). The most common, locally produced, painted wares are Rosa Black-on-White, glaze variety, and Piedra Black-on-White. This suggests that the entire occupation of the site occurred in a relatively brief period, toward the end of Rosa Phase and the beginning of Piedra Phase. On the basis of the quantitative analysis of the potsherds (Table 2), the dividing line between these two phases could be drawn between the abandonment of Feature 8 and the construction of Feature 7. Following this line of reasoning, Feature 8 should be assigned to the Rosa Phase. However, on the basis of the architecture, Feature 8 may be equated with Feature 1. The latter structure is assigned to the Piedra Phase on the basis of the associated pottery types and architectureal features, for example, small pit house diameter, absence of bench, absence of wing walls, and presence of bifurcate ventilator. Identification of Feature 8 as a Piedra Phase manifestation appears to be more reasonable. Features 3 and 4 can be assigned to the Rosa Phase and the remaining structures identified as early Piedra Phase.

Absolute Chronology of Features

The absolute chronological placement of the Serrano Site, in relation to the Christian Calendar, must depend upon tree-ring dates. Thirty-nine specimens were collected, of which nine yielded dates ranging from A.D. 850vv to 898r (Table 12). Seven of these dates, ranging

TABLE 12

TREE-RING DATES, SERRANO SITE

ARIZONA CATALOG NO.	DATE*	WOOD	LOCUS
RG-3975D	841p - 876vv	_Pinus ponderosa_	F-5, roof fall
RG-3975E	811p - 852vv	" "	F-5, roof fall
RG-3975F	844p - 893vv	" "	F-5, roof fall
RG-3975I	834p - 864vv	" "	F-5, roof fall
RG-3975A	863p - 898r	" "	F-5, roof fall
RG-3976	820p - 863vv	" "	F-5, roof fall
RG-3986	858p - 895vv	" "	F-5, roof fall
RG-3996	814p - 850vv	" "	F-2, fill
RG-3998	836p - 885vv	" "	F-8, post hole

*, Tree-ring specimens dated by Thomas Lee, Laboratory of Tree-Ring Research, University of Arizona, Tucson, Arizona.

vv, Outside shows extreme erosion, last ring very variable around circumference. If no other symbol, unknown number of rings lost.

r, Outermost ring continuous around the portion of specimen present; possible cutting date.

p, Pith ring present.

from 852vv to 898r, are associated with the construction of Feature 5. Stratigraphically, Feature 5 is the latest structure at the site. The difference in these dates may be the result of differential preservation, as the roof burned and fell. On the basis of these dates, Feature 5 was built no earlier than A. D. 898.

The two remaining dates, 850vv and 885vv, are from Feature 2 fill and a post hole in Feature 8, respectively. Only the latter is of help in the temporal placement of features. The date of 885vv from Feature 8 indicates that the construction of that feature probably occurred at least that late or later. The stratigraphically earlier Feature 4 would have been constructed at some undetermined time prior to A. D. 885.

Correlation of the tree-ring dates with the stratigraphic sequence indicates a great deal of rebuilding of pit houses in a remarkably short period of time. In the short span of thirteen years or less (A. D. 885-898), there occurred the building and burning of Feature 8, the building and abandonment of Feature 7, and the building of Feature 5. An alternative reconstruction is that the beams in the roof dating about A. D. 898 actually are reused beams from the roof of Feature 7. If this is correct, the construction of Feature 5 would post date A. D. 900. Of the possible two reconstructions, the latter seems more likely.

Resume

According to the presence of pottery types, dated by the association with tree-ring dates elsewhere, the entire occupation of the Serrano Site falls within the period A. D. 800-900. Tree-ring dates from the site, though not available for all features, tend to support this premise.

During the above time interval, the transition between Rosa Phase and Piedra Phase occurred. Utilizing the limited number of tree-ring dates from the Serrano Site, the temporal position of this transition may be interpreted as follows: On the basis of ceramics and architecture, the transition between the two phases has been assigned to the time interval between the abandonment of Feature 4 and the construction of Feature 8. The construction of Feature 8 has been dated ca. A. D. 885, or slightly later. Therefore, the tentative date for the transition between Rosa Phase and Piedra Phase, at the Serrano Site, would be in the neighborhood of A. D. 875.

SUMMARY

Analysis of the architecture and items of material culture from the Serrano Site has revealed a complex series of superimposed pit houses, all built within a fairly short interval of time, dating from late in Rosa Phase through the early part of Piedra Phase (ca. A. D. 800-900). Comparison of materials from the Serrano Site with that excavated by Roberts (1930), on nearby Stollsteimer Mesa, reveals that the Serrano Site may be assigned to the early portion of remains reported from that area. Comparisons between Roberts' data and that reported here demonstrate identity in the material culture and architecture of the surface units. Differences between the two samples are owing to the fact that Roberts considered his depressions to be barrow pits and did not excavate them completely, and to his obtaining a larger sample of material culture which exhibits a greater range of variation.

Interpretations, derived from the data recovered from the Serrano Site, are: (1) The instability of the pit house walls led to the construction of numerous houses within a short interval of time. (2) The site unit of two pit houses, occupied simultaneously, appears to have a stability through time greater than the life expectancy of the individual pit house. (3) The social unit occupying this two-pit house unit may have been the extended family. (4) Changes in pit house architecture through time include a reduction in size and depth. (5) Although no ceremonial structure was present at the site, the inhabitants may have had connections with another site nearby, possessing such a structure. (6) During the early part of Piedra Phase, the major utilization of surface rooms was for storage, rather than for living. (7) The transition between Rosa Phase and Piedra Phase took place at approximately A.D. 875.

CHAPTER IV

EXCAVATIONS AT THE RAILROAD SITE, LA 4103

by JAMES V. SCISCENTI, ALFRED E. DITTERT, JR., and BETH DICKEY

PROBLEMS AND RESULTS

The Piedra and Arboles Phases in the Navajo Reservoir District are characterized by rapid culture change. Influences arrived from centers of population to the west, and environmental factors caused movements of people within the District. Consequently, a wide variation in cultural traits was extant. Some of the sites dug prior to excavations at LA 4103 exhibited similarities with remains studied by Roberts at Stollsteimer Mesa (Roberts, 1930). At other sites of the same period, there was a departure from the architectural forms that Roberts described. For this reason, the investigation of additional examples seemed desirable.

Architectural features of LA 4103 appeared to be well preserved, and surface collections suggested a temporal placement from late in the Piedra Phase to early in the Arboles Phase. The site would, therefore, provide information concerning culture traits present at the transition between these two cultural units. Investigation of the site had been recommended at the time of the site survey, and was undertaken in May 1960 because of impending destruction by railroad relocation.

Setting

LA 4103 is located in T 32 N, R 5 W, Sec. 4, SW 1/4, NW 1/4, Archuleta County, Colorado, about 2.1 miles north-northwest of the recently abandoned town of Arboles, Colorado. The site occupies a level, sagebrush-covered area at the edge of the second Pleistocene bench. Eastward, the land rises gently, at first, and then steeply, to the crests of eroded, clay hills. Vegetation changes from the sagebrush to a growth of pinyon and juniper. On the west is an almost vertical drop of sixty feet to the first Pleistocene bench. The latter has a gentle slope to the Piedra River. The first Pleistocene bench is now being cultivated.

Aboriginal cultivation of land could have been accomplished either by floodplain cultivation on the Recent terrace, or by the use of floodwater irrigation. Drainages, which cut the second Pleistocene bench on either side of LA 4103, receive moisture from a large portion of the higher slopes behind the bench, and debouch waters into the lower levels. The use of temporary, diversion techniques would have permitted the cultivation of sufficient land for the needs of people living at the sites.

Other resources include water, wood for fuel and construction, suitable stone for building or knapping, and clays. Populations of animals appear to have been as large in the past as at present. Wild food plants may have been more abundant prior to the advent of the extensive grazing and agriculture that exist today.

Description

Surface survey along the realigned railroad right-of-way yielded a Multiple Unit Site, thought to consist of one pit house, and a kiva surrounded by a U-shaped, cobble-and-sandstone, surface structure of about thirty rooms. A single hogan and surface sherds of the Gobernador Phase were recorded upslope, to the east of the Pueblo Period component, (Dittert, et al, 1961, Table 6).

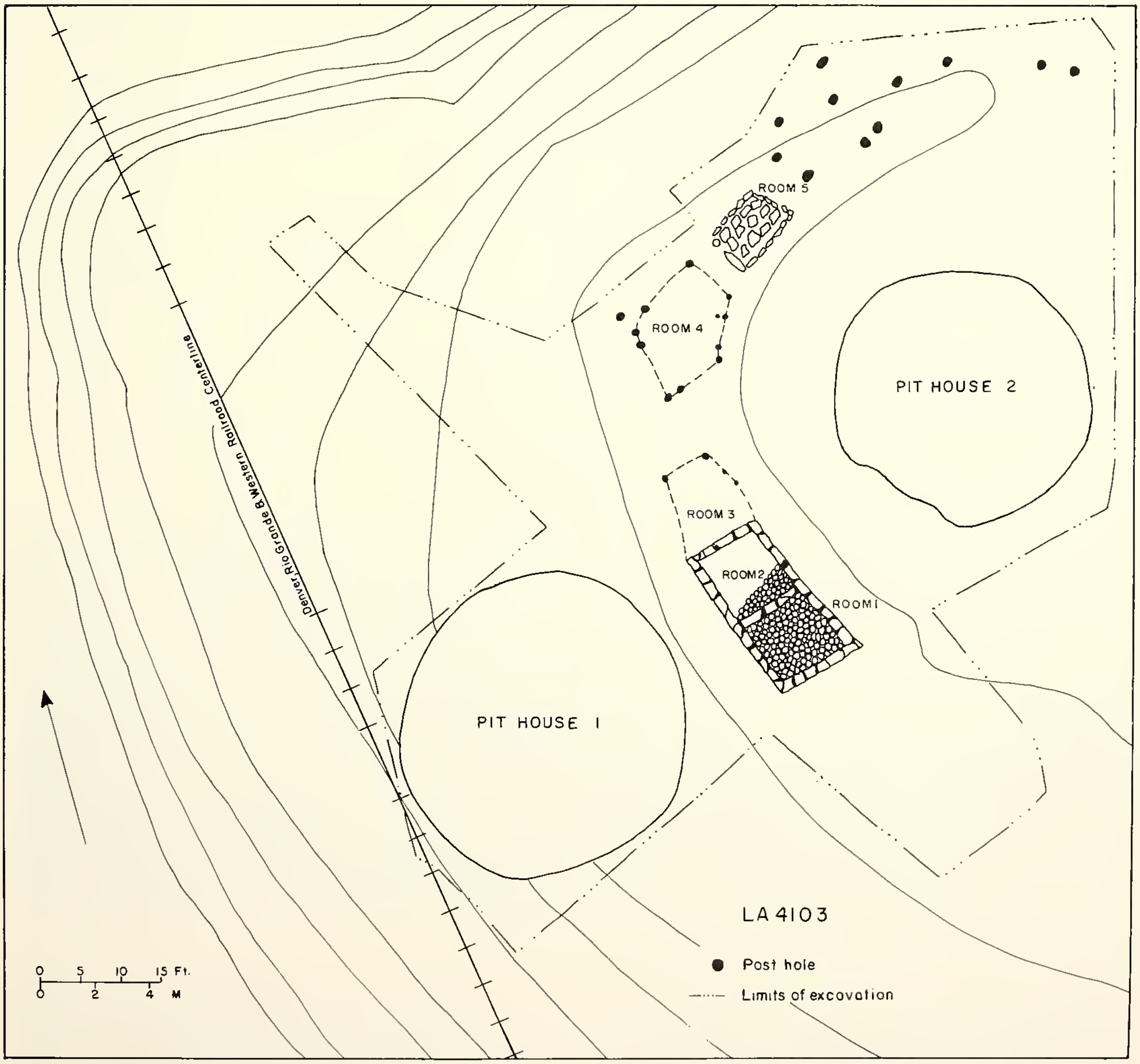

Fig. 33. Map showing the distribution of prehistoric remains, Railroad Site.

Excavation verified the number of sub-surface units; however, the domestic architecture of Pit House 2, originally thought to be a kiva, indicated that it is a second pit house. Surface room excavation was restricted to an L-shaped row, to the north and west of the postulated kiva; in this area, five rooms are dug. Two, and possibly three, of these are coursed masonry rooms; and two are ramadas, or jacal structures. Another ramada, or incomplete stockade, is marked by a concentration of eleven upright, rotted logs, located immediately north of Pit House 2, as a continuation of the north flank of the surface structure alignment (Fig.33). The indefinite nature of the latter remains rules out the assignment of a room designation. The true masonry rooms are a more technologically advanced form of construction than the cobble-and-sandstone-base type of building thought to be present from the surface evidence.

The Navajo component lay outside the zone of construction, and, therefore, was not excavated. However, sherds from this occupation drifted into the upper portion of the Pueblo structures and are listed on Table 13.

Research Procedure

Excavation of one of the pit houses and initial testing of the second were performed with a Sherman backhoe, using a twenty-four inch bucket. Owing to mechanical difficulties, Pit House 2 was excavated almost entirely by hand. A block of fill was left in the northwest side of the house as a stratigraphic check.

The houses were first trenched to locate two points on the curving wall. Then, the bounds were determined by making a backhoe cut and clearing to the wall by hand. At intervals, the equipment was shifted from the wall to remove interior fill. Power excavation removed the house fill to the top of roof fall, and hand labor was used to clear the remaining material. The floor was troweled for maximum recovery of specimens and control in clearing around architectural details. Specimens were recorded by location in the general house fill, roof fall, or floor contact. Pollen analysis samples were removed in 0.3-0.5 foot intervals from the fill of both houses.

A low, debris-covered, elongate, surface mound lay between the two subsurface houses. This mound was correctly interpreted as the remains of surface structures. A series of trenches was dug into the mound, until walls were intercepted. After outlining the wall exteriors, Rooms 1 and 2 were cleared, the fill of each being removed as a unit. Surface stripping of other areas of the site revealed three more rooms, as well as a cluster of post holes; further stripping and occasional test pits, both with the backhoe and by hand, failed to reveal further architectural manifestations (Fig. 34).

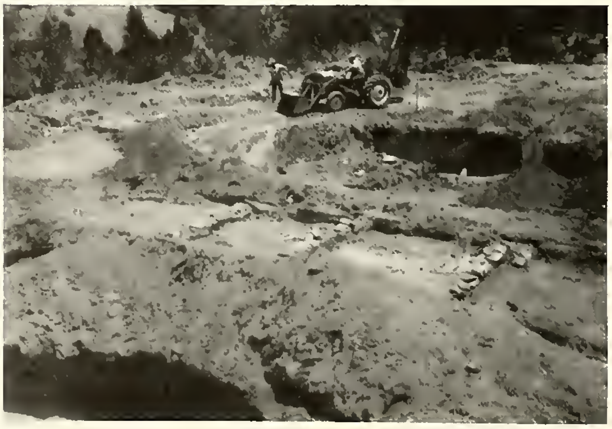

Fig. 34. View across the Railroad Site showing work in progress. Pit House 1 lies in foreground, with Pit House 2 just to the foreground of the Ford tractor-backhoe. Surface rooms lie between the pit houses. The laborer stands in the position of the post hole cluster.

When cleared, the structures and construction details were photographed both with Polaroid and with Speed Graphic cameras. The pit houses were photographed from a fifty-foot ladder, guyed in place with three supporting ropes. Mapping was done with an alidade and plane table, and included individual, detail maps, as well as an overall site map, showing relief by 1.0 foot contour intervals (Fig. 33).

Conclusions

The Railroad Site was excavated to obtain information on a Multiple Unit Site considered to be transitional, late Piedra-early Arboles Phase. It is now destroyed by construction of the new Denver and Rio Grande Western right-of-way. Architectural information was recovered on two pit houses and five surface rooms. The latter consists of two masonry units, two ramadas, and a room of questionable construction. In addition, a cluster of post holes may have been either remains of a stockade or of an additional ramada.

The pit houses contain domestic furnishings and were used as residences. Surface rooms were probably used for storage and the ramadas may have been employed as open-air work areas. The true, coursed masonry in Rooms 1 and 2 represents some of the most advanced construction now known from the Reservoir District, and is the forerunner of the large, grid-type Pueblo building found on Chimney Rock Mesa, eleven miles to the north, and up the Piedra River.

The ceramic complex present is unusual because of the high percentage of corrugated pottery, an occurrence which has been found from the surface at only twenty-two sites within the entire Reservoir (Dittert, et al, 1961, Table 6). Of these, only nine (40.9%) sites have occurrences greater than 5.0 per cent of the total surface collection. The distribution of sites with corrugated pottery is spread through five geographic sections, all lying in the upper, north end of the Reservoir District. No sites with corrugated pottery lie below the Bancos Section. However, over half (54.5%) of the twenty-two sites mentioned above are located in the Piedra River Section, where the excavation study of the Railroad and Martinez Sites provides the needed detailed information on both the nature and on the architectural association of these ceramics.

In the site survey study of the Reservoir, it was postulated that Arboles Black-on-White, a diagnostic of the Arboles Phase, is one of the latest local pottery types. It was assumed that, eventually sites dating towards the end of the Arboles Phase would be found containing the Black-on-White type in association with corrugated pottery and lacking types diagnostic of the Piedra Phase such as Piedra and Bancos Black-on-White. Therefore, it was quite surprising to see some of these expected relationships partially disputed in the occurrences at the Railroad Site. Here painted types, Piedra and Bancos Black-on-White, are found in higher percentages than Arboles (Table 13).

At the same time, Arboles Gray, an associate of the painted type of the same name, is the most common plain type, far outstripping the presence of Piedra Gray, an associate of Piedra and Bancos Black-on-White. Clearly, some discrepancies are indicated in the postulated ceramic associations and sequence. Perhaps the future analysis of other excavated sites with these ceramic types will help straighten out the understanding of these relationships. It is significant that the best developed masonry architecture in the Reservoir has corrugated pottery associated with it.

A new corrugated type, Payan Corrugated, is introduced in this chapter to describe a variant of Mancos Corrugated. This type is distinctive, and will be of aid in discovering trade relationships and any possible temporal developments.

However, future studies on a synthesis level may indicate that it should be reintegrated into the Mancos type.

Study of other types of artifacts is based on comparison with material from Sambrito Village (Dittert, et al, 1963b). Vessels, worked sherds, and a secondary plate vessel are described under clay artifacts. The stone artifact collection is unusual because of the low incidence of pressure and percussion tools, as well as the lack of waste discard from this manufacture. Twenty pressure and precussion tools are present, out of seventy-one total (Table 15). This gives a ratio of two-and-a-half times as many pecked and ground tools as for the percussion-pressure tools. The ratio is surprising because of the occurrence of an antler chipper and punch for percussion and pressure-knapping.

The bone artifacts reveal a strong preference for perforating tools, perhaps an indication of a site specialty. The scapula pendants are of a uniquely new, artifact type.

In contrast to earlier sites, the occurrence of five antler artifacts conforms to the trend found at Sambrito Village, in which a progressively greater use of antler is found through time. This increase is also reinforced by the proximity to the mountainous highland of the Piedra Peaks, where elk are plentiful.

The presence of a single hide artifact found in the post hole cluster is anomalous. It is difficult to believe that this perishable piece could have survived a thousand years or so of weathering, lying just under the ground surface. However, there is nothing about it to indicate a recent intrusion into the site. Perhaps it was placed in the ground during the Gobernador Phase.

Only two examples of basketry impressions are found on fired pot sherds. These are of the close-coil type, and one shows a self rim. The low incidence of basket-impressed sherds proportionate to the unimpressed is at variance with the findings at Sambrito Village, where the proportion of sherds and whole vessels shows a significantly higher percentage of basketry impressions.

The site chronology is based on the dating of the contained ceramics; no other dating techniques could be applied. The major excavated manifestations appear to have been constructed and used during the period A.D. 925-975. Pit House 2 is the older of the subsurface structures and was abandoned while Number 1 was still in use. The large quantity of pottery in the fill of House 2 constitutes refuse thrown in after abandonment, probably by the occupants of Pit House 1. The Surface Rooms and the post hole cluster were used up to the point of site abandonment.

ARCHITECTURE

Seven structures are present: two pit houses and five surface rooms. A cluster of upright, rotted posts, lying north of Pit House 2, may be the remains of another room or an incomplete portion of a stockade.

Generalized Details

The pit houses have many characteristics in common. In both, the plan is an irregular circle, one side being somewhat flattened. Walls are formed by the straight-sided, deep pits excavated to recess the floor below the ground surface. Floor features include three rock-lined post holes for the upright support posts. Originally, probably a fourth post was present to complete the symmetry of a rectangular pattern so common elsewhere. An encircling bench is present, which surrounds a large part of the room perimeter. This feature is excavated from the natural clay, and is not built up by filling. As seen in plan view, both benches are set back into the bank, out of the main floor area, and merge with the pit wall. They are finished with several coats of clay plaster, which also covers the floor and lower sides of the wall. Originally, the plaster must have covered the entire wall, but weathering has removed it from the upper portions. Burning has reddened spots on the wall plaster and portions of the floor. This resulted from the burned and collapsed roof material, which now fills the lower 0.5 feet of the pit and consists of charred beams and brick-red pieces of construction clay. These fragments retain the cast impressions of the roofing beams over which the clay was plastered. Neither house shows evidence of a ventilator, but, if one were present and missed in excavation, it should be in the flattened side of the house not covered by the bench.

Pit House 2 is relatively plain, having few floor features and floor contact specimens. House 1 has more individual architectural details, as well as a good number of floor specimens.

Two contiguous, square, masonry rooms (Nos. 1 and 2) are floored with rounded, river cobbles, set in adobe clay. Walls are of thin, tabular slabs of sandstone, laid horizontally in rough courses. No more than three courses are present in the dividing wall between the two rooms. A heavy binder of clay mortar, which forms a fair proportion of the total wall volumn, is used to hold the slabs together. Wall or floor plaster is not present. Fire basins are absent, as are post holes and entryways. The masonry wall remnants may have extended full height and no upright post remains are present to indicate that the now tumbled upper portion of the walls was of any other construction. But, conversely, the lack of any considerable amount of fallen masonry means either that the masonry walls did not originally rise to a great height, or that a perishable, upper wall construction of mud or wood was employed. Small pieces of burned adobe in the fill suggest a pole and mud roof. Other fill materials are: sand, some charcoal, masonry blocks, and pot sherds.

A third room (No. 5) with a slab-paved floor, may have been either masonry or jacal construction, but evidence is lacking to support either assumption.

Two, and possibly three, structures are outlined with wood-filled post holes (Rooms 3, 4, and post hole cluster). These may have been jacal units or ramadas. The evidence remaining consists of relatively level areas of hard-packed sand or clay, laid on the ground surface. These floors are not intentionally finished and compaction occurred because of trampling as people walked and worked. Burned and collapsed roof material overlay these floors. Whether or not the structures had walls, the post holes definitely indicate a pole frame, supporting a roof platform of beams covered with mud. If walls were present, they would also have been of mud, plastered on a pole frame. House-burning fired the construction clay and preserved the impressions of beams and finger-smoothed surface found on the fragments. No floor details and no evidence of an entryway or of a fire basin are preserved.

Integration of Details at Individual Structures

The following are detailed, house descriptions for each structure, accompanied by plans and photographs. Unique

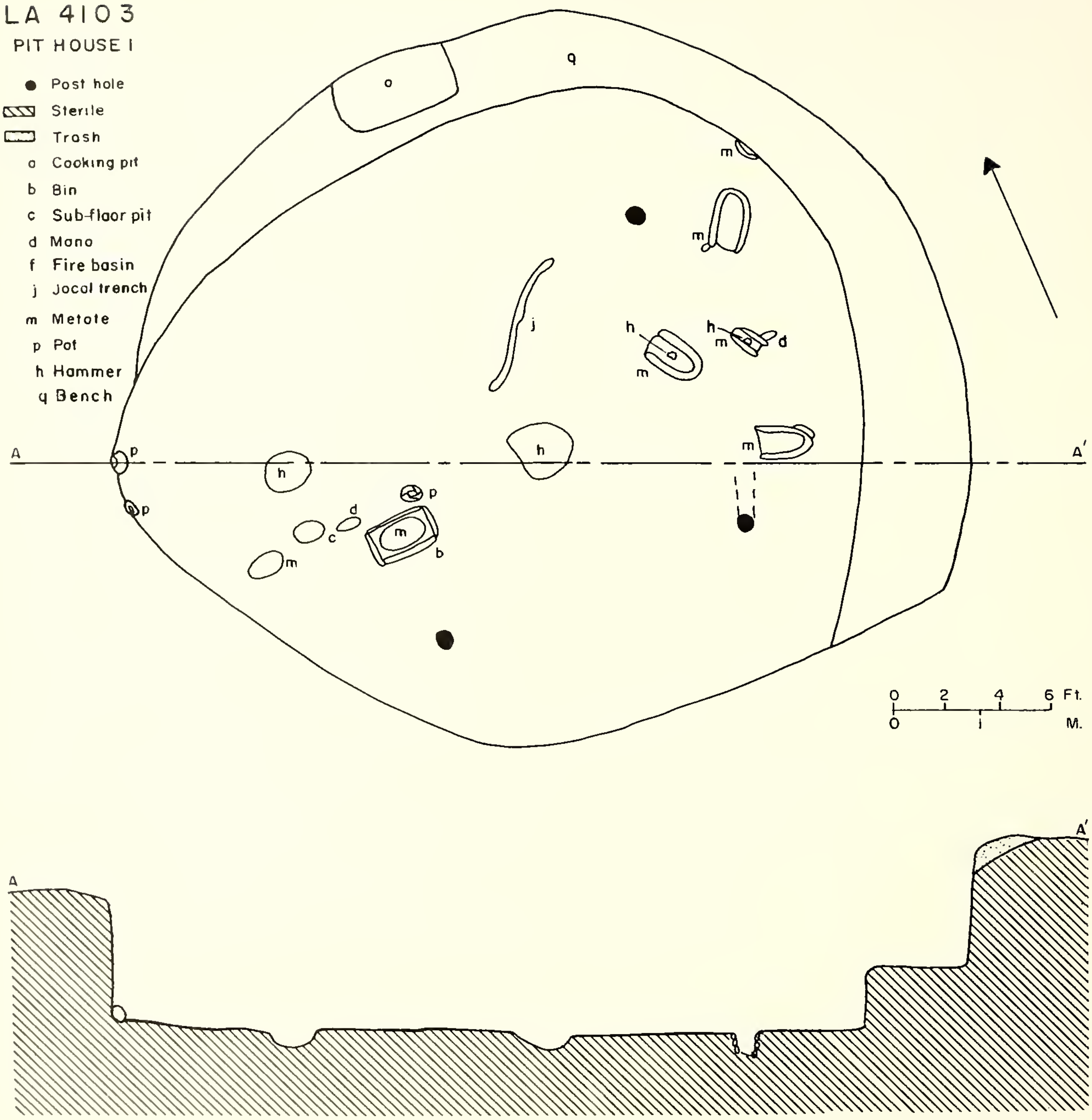

Fig. 35. Plan and profile of Pit House 1, Railroad Site.

characteristics are emphasized to show the individual variation from the patterns discussed above.

PIT HOUSE 1 (Fig.35)

Pit House 1 is an irregularly shaped, circular house, having a bench encircling about three-fifths of the floor perimeter. Two to three layers of clay plaster 0.1 - 0.4 feet thick were applied directly over the pit walls, bench, and floor. A series of dimples is present in the floor clay near the west wall.

The post sockets are lined with stone wedges, and a flat stone was used on the bottom as a seat on which the post rested. Remains of charred and rooted wood were found in the holes.

Two circular, clay-lined, fire basins had been excavated below the floor level. One is centrally located and the other offset to one side. A small, oval-shaped, sub-floor pit 1.4 feet deep is present near the metate bin, and may have been used for storage of ground meal. A second pit is found next to the wall, and sunk into the top of the bench. This pit is unlined, but burned a bright orange color, suggesting that it was used as an interior oven. A shallow (0.3 - 0.6 feet deep), S-shaped trench is near the central fire basin. It is completely plastered with clay, and may have served as a base for a jacal wall that acted as a partition or deflector.

A slab-and-clay bin holds a metate at an inclined angle. This bin is of long, rectangular box-shape and is enclosed with thin slabs of sandstone, held upright by a clay-rim base. The box has a slight excavation in the floor, which is lower on the west end, causing the contained metate to tilt at the proper angle for milling.

A thick (0.5 feet) layer of burned, roof material lies on the floor. It consists of burned fragments of construction clay, showing cast impressions of roofing beams, and may charred logs. Twenty parallel logs were revealed by the initial test trench through the structure, and these trend east-west. An additional few run at right angles to the trend but the major pattern of the roof framing is shown by this alignment. Several were identified as juniper, and could not be dated by their growth rings.

Eleven specimens were found on the floor, indicating that the house was in use at the time of destruction. Of these, seven are metates. One leaned against the bench riser, one was set within the metate bin, and the remainder were scattered on the floor. A set of five is concentrated on the east side of the room near the bench, where a special milling, work area must have been in operation. All these are set with the open end of the trough tilted down in the milling position. This tilt is obtained by wedging up the closed end of the tool with mud and stones to provide the proper slant. One mano is recorded on the floor between the metate bin and the sub-floor pit, and may have been used in the metate bin. Another is a mano blank, use of which on the adjacent metate had just begun. Hammers lie in the trough of two adjacent metates in the east portion of the room. These may have been used to crush and pulverize food on the metate surface, preparatory to actual milling, or to sharpen the trough surface by pecking. Three pots were found in the west portion of the room: one near the metate bin, where it may have been used to hold freshly ground grain, and two others, placed near the wall, out of the way of foot traffic. Other floor and roof fall specimens are present, but the exact location was not recorded on the plan (Table 15).

PIT HOUSE 2 (Figs. 36,37)

This circular, house has one section of the wall slightly flattened. Six-sevenths of the room perimeter is covered by a spiral bench, which rises in a clockwise fashion from west to south (Fig.37, Profile A-A'). Three rock-lined post holes are arranged in an L-shape; one is set in a large, shallow depression in the floor. This depression may have served as a sump drain during damp weather. A fourth post hole, which can be postulated on the basis of need for symmetry in the major roof supports, could be obscured by the unexcavated block of fill remaining in the house. Two other vertical post holes were found, set into the bench surface, adjacent to the house wall. They are supernumeries, and may have served additionally, as reinforcing rods to help support the pit bank.

A fire basin was not discovered and would have had to be far off center, in order to be hidden by the fill block. Other common details which are absent include: sub-floor pits, partition walls, and a ventilator. If the vent is present, and simply was not located during excavation, then, it should be located in the flattened, benchless section of the wall. A thick layer of roof material lay on the floor, but detail information concerning the former method of frame construction was not indicated by an alignment of beams. The position of only two floor contact specimens is recorded on the floor plan, and these are metates, each containing a mano, resting in the grinding trough. Both metates parallel the trend of the house wall, their troughs opening in opposite directions.

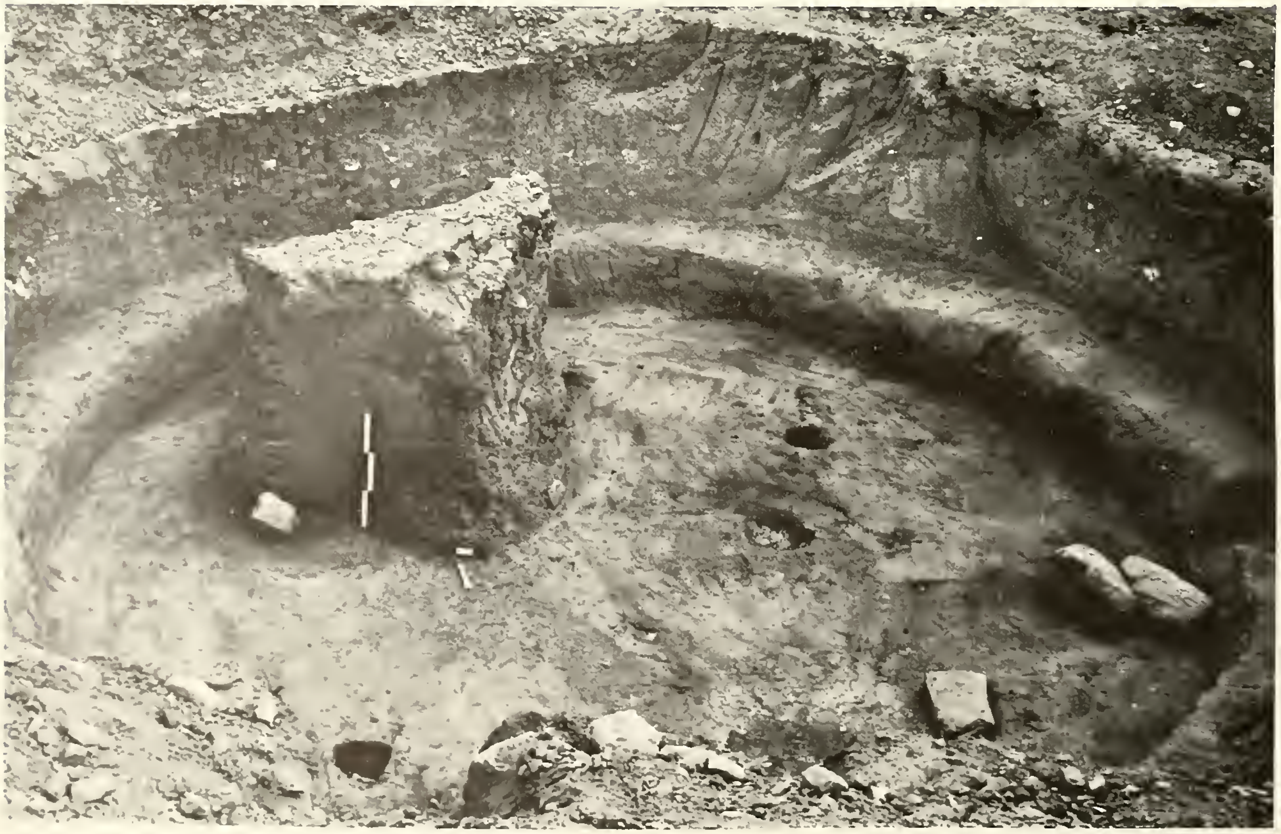

Fig. 36. Pit House 2, showing bench and cleared floor. Railroad Site. Triangular-shaped block of fill, resting on the floor, indicates the house depth. Note pollen profile, indicated by the vertical row of small holes to the left of the three-foot scale.

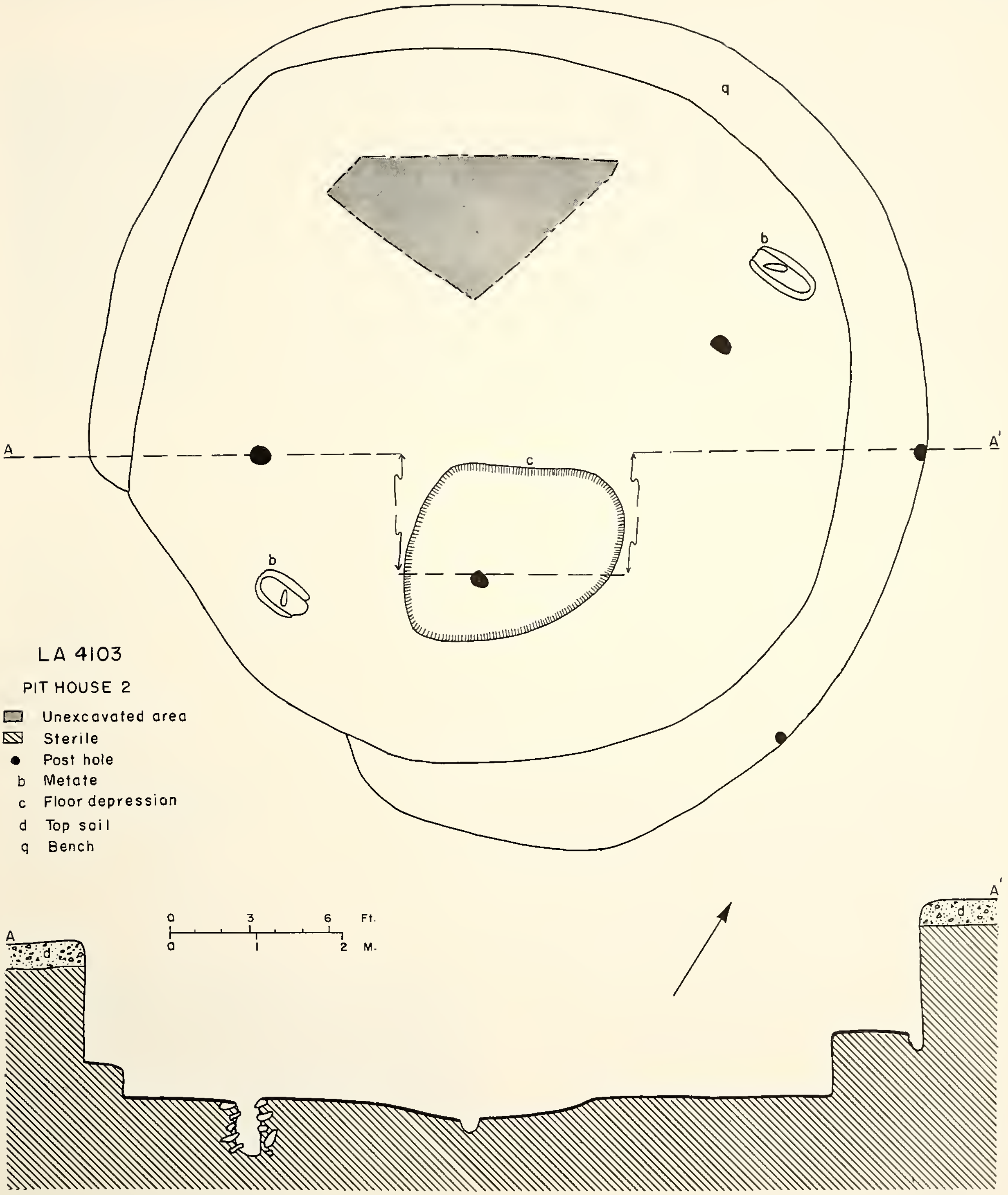

Fig. 37. Plan and profile of Pit House 2, Railroad Site.

SURFACE ROOM 1 (Figs. 38, 39)

A square, masonry room is linked with Room 2. It is floored with river cobbles, laid in clay mortar, and resting . directly on the leveled, ground surface. The masonry wall is composed of thin, tabular slabs of sandstone, which are laid in rough courses and mortared with adobe. A maximum height of three courses is present in the dividing wall, which is contiguous with the next room. This wall was apparently added last, since it is not bonded into the conjoining walls, and it rests on the cobble floor which continues into Room 2.

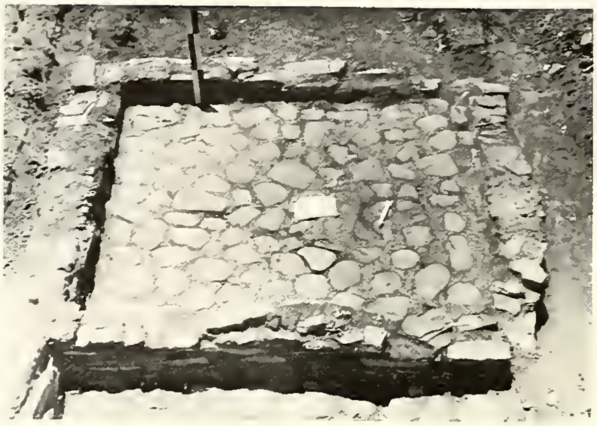

Fig. 38. Surface Room 1, showing floor and wall construction, Railroad Site.

Eight clay fragments from the room fill were brought back to the laboratory for detailed study. They are irregular-to-elongate in shape, and have been broken from a larger clay mass. They show half-cylindrical impressions of large beams, one or two per fragment. When several impressions are present, they parallel one another. However, one piece shows a set of cast impressions converging at right-angles. The opposite face of this piece, which is traingular in cross-section, has been smoothed, and fingerprints are evident.

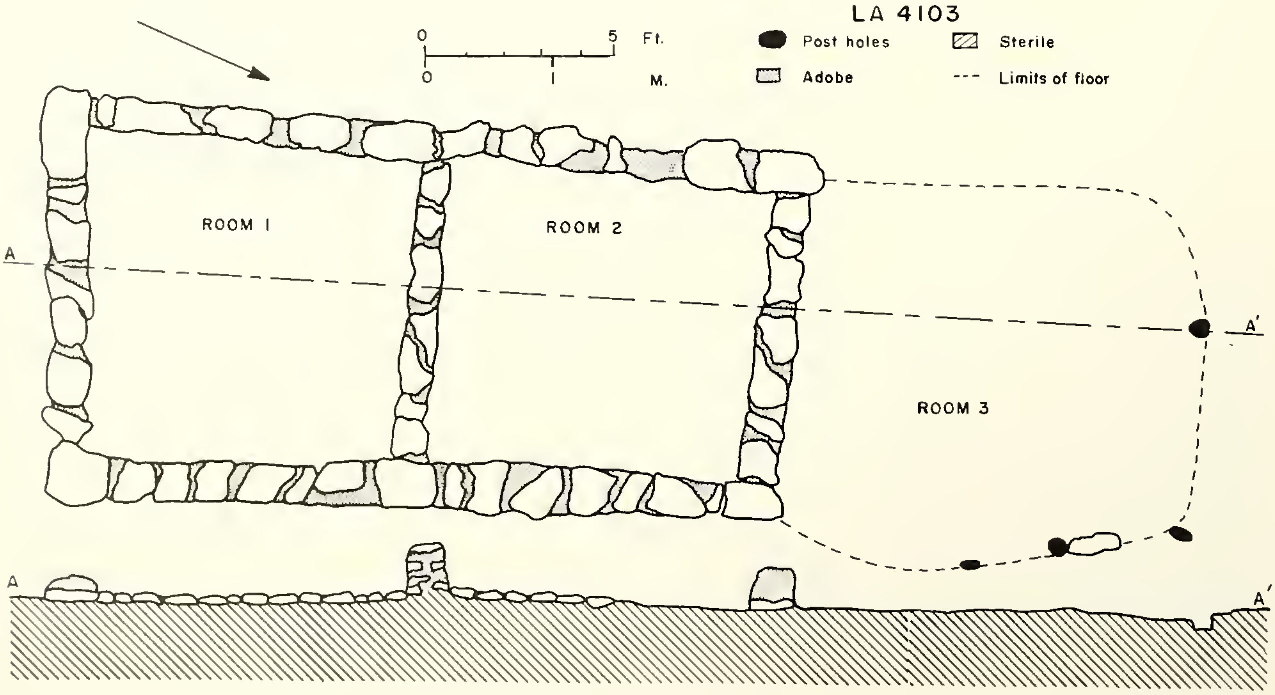

Fig. 39. Plan and profile of Surface Rooms 1-3, Railroad Site.

It is inferred from the above pieces that the roof construction was composed of heavy, beam poles, laid parallel across the short axis of the rectangular room. The poles were horizontal and rested on top of the walls. The right-angled joining of one set of beams may represent a cross-piece to tie the parallel vigas together. Mud plaster was applied directly on the poles, and hand-smoothed. This baked hard, when the roof caught fire. The surface of the clay fragments is coated with a thin, white film of caliche, perhaps obtained from ground moisture.

SURFACE ROOM 2 (Figs. 39, 40)

A square, masonry room which is linked with Room 1. Appearance and construction are identical with those of the adjacent room. The only difference is a missing portion of cobble-paved floor in the north half of the room. Evidence encountered during excavation indicates destruction by "pot hunters".

A single fragment of roofing clay from the room fill was returned to the laboratory. It is of exceptional value in reconstructing the nature of the roof construction because of its many clear wood and finger impressions (Fig. 41). It is elongate-shaped, and baked to an orange color and a brick hardness. It is trapezoidal in cross-section. The wide, upper face is impressed with nine half-cylinder grooves, made by either reeds or willow branches, laid parallel to one another. The surface of these casts is smooth, with thin, fine lines paralleling the long axis of the groove. These lines are probably imprints of a smooth textured bark. The opposite face of the piece is concave and was smoothed originally by fingers being drug down the length of the piece. The sides of the fragment are also concave, partial circle grooves having been made with large beams.

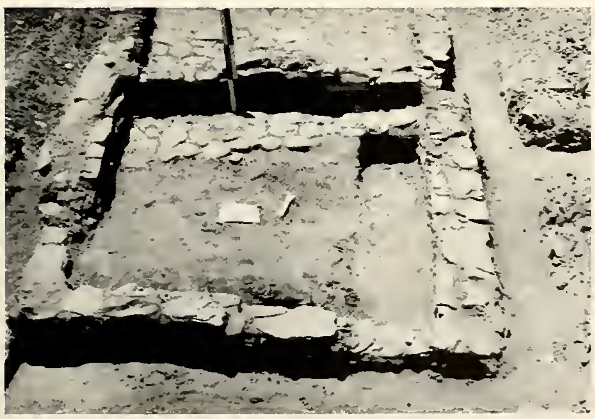

Fig. 40. Surface Room 2, Railroad Site.

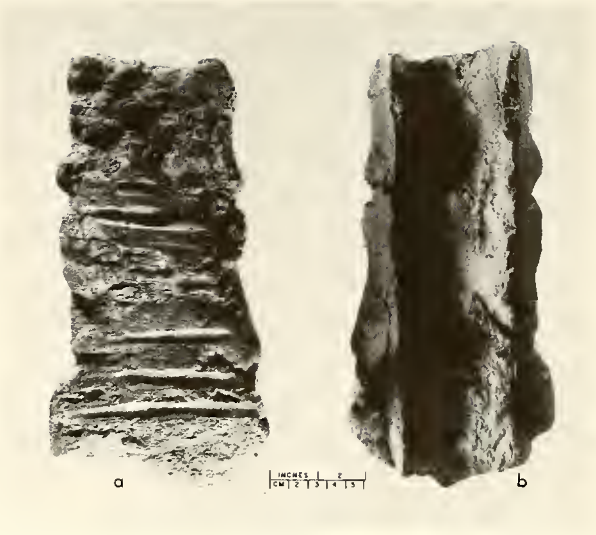

Fig. 41. Burned fragment of roof-construction clay, Surface Room 2, Railroad Site.

It is inferred that the above pieces of clay shows the following aspects of the original roof construction: the two parallel large beam casts represent a portion of the major roof frame. Mud was applied directly on the pole frame, and finger-smoothed from underneath, where the plastic clay flowed down between the beams. A mat of parallel branches was laid at right angles over the pole frame, in part, directly on the beams, and, also on the mud between them. Although not present, it is assumed that a second layer of mud was placed over the mat, as indicated by other, clay impressions in Surface Room 1, Martinez Site. However, this mud split apart, dividing along the plane of the mat.

SURFACE ROOM 3 (Fig. 39)

This room is a square structure, whose floor surface is composed of hard-packed sand. Four post holes, marking the location of former, upright, roof supports, contain rotted wood and occur around the north and east parts of the room perimeter. A layer of roof fall, consisting of burned clay and small charred fragments of wood, rests on the floor. The clay fragments are similar to those described for Surface Room 1, and show impressions of large beams. The casts are smooth, indicating that the bark was peeled from the timber before being used. One piece of clay has a smooth-finished, surface which was utilized as the roof. The layer of small branches, used in the construction in Surface Room 2, was not employed for this room.

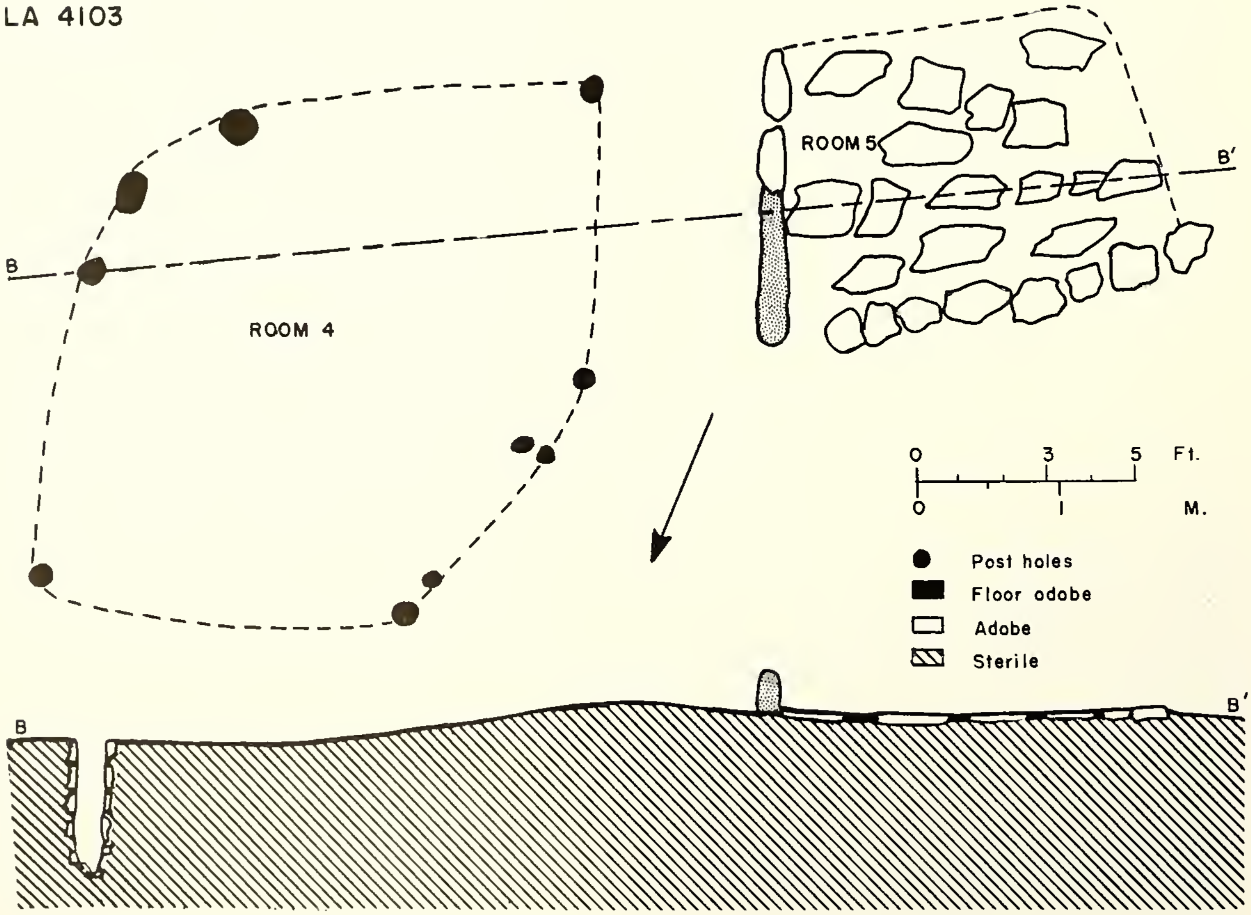

Fig. 42. Plan and profile of Surface Rooms 4-5, Railroad Site.

SURFACE ROOM 4 (Fig. 42)

Surface Room 4 is pentagon-shaped, consisting of a hard-packed layer of clay resting directly on the ground surface, and surrounded by ten post sockets, one of which is lined with rock wedges (see Profile B-B'). A layer of roof fall, consisting of charred logs and burned clay, lies on the floor. No entryway or fire basin is present.

SURFACE ROOM 5 (Fig. 42)

Room 5 is rectangular, defined by a sandstone slab floor, laid in clay mortar, which rests directly on the ground surface. A low wall remnant of clay is present on the east side of the room; the lack of evidence of walls or post holes leaves some doubt as to whether the superstructure was masonry, as in Rooms 1-2, or jacal, as in Rooms 3-4. A layer of burned construction clay, which has log impressions, indicates that, at least, the roof was of poles and mud. Several roof beams were identified as juniper, but they could not be dated by their growth rings.

POST HOLE CLUSTER (Fig. 33)

An elongate cluster of post holes lies just north of Pit House 2. These holes do not indicate what type of structure was associated, but their position on line with Rooms 4 and 5, and flanking the pit house indicates that they are part of the L-shaped, room block composed of Rooms 1-5. They may be the confused remains of a ramada, or a portion of a stockade.

Interpretive Resume

Seven structures have been described in detail. These consist of two pit houses and five surface rooms. Another surface room, or possibly a portion of a stockade, is represented by a cluster of post holes. The pit houses appear to be the primary residence units, as is particularly well attested by the number of domestic tools resting on the floor of Pit House 1. Neither structure has any ceremonial features, as was postulated during the site survey. The presence of two fire basins in Pit House 1 may indicate either the re-location of the heating device, or the sociological structure of the occupants. The dual hearth arrangment suggests occupation by an extended family or two nuclear families, each having their own fire. This latter interpretation is supported by the large number of metates and milling tools, which would have required a number of operators.

An L-shaped alignment of contiguous, linked, and independent rooms lies on a slight ridge, around the west and north flanks of Pit House 2. These structures apparently were planned and built as a unit, to be associated with the flanked pit house. Although several methods of wall and floor construction were involved in their erection, they all share certain common attributes. They are, roughly, the same size; no evidence of an entryway is present; and fire basins and floor-contact specimens were not discovered. It is inferred, accordingly, that they were employed as storage units to serve the occupants of one,or possibly both, subsurface houses.

Storage in the surface rooms would explain the general lack of sub-floor pits in the pit houses, where goods were kept in earlier times. The use of cobble-and slab-floored houses as granaries would have been practical in keeping stored foods free from ground moisture and rodents. This practice has been noted at the nearby Martinez Site and Sambrito Village (Dittert, et al, 1963b). If Surface Rooms 3-5 and the post cluster are true ramadas with open sides, they may have been used as work areas, and any storage function would have applied, principally, to durable goods.

ARTIFACTS

Ceramics

Surface collections and excavations yielded 3,093 sherds, which are grouped into twenty-five types (Table 13). With few exceptions, the collection forms a compatible unit that can be assigned to the last part of the Piedra Phase and to the early part of the Arboles Phase, or about A.D. 925 to 975. Deviations from this period exist in the occurrence of a few Navajo Period sherds and a few from the Rosa Phase. The one excavation unit that failed to yield sherds was Room 5 of the surface structures.

GOBERNADOR PHASE

A minor number of Gobernador Phase sherds occurs in the upper fill of Pit House 2. These serve only to provide additional evidence for the late use of the location. Comments on these types are included in Dittert, et al, (1961, p. 154).

TABLE 13

OCCURRENCE OF CERAMIC TYPES BY PROVENIENCE, RAILROAD SITE (in per cent)

PROVENIENCE / POTTERY TYPE		SURFACE	PIT HOUSE 1			PIT HOUSE 2		SURFACE ROOMS				POST HOLE CLUSTER	TOTAL SITE PER CENT
			FILL	FLOOR	SUB-FLOOR PIT	FILL	FLOOR	ROOM 1	ROOM 2	ROOM 3	ROOM 4		
Navajo Period													
	Jeddito B/Y	-	-	-	-	0.06	-	-	-	-	-	-	0.03
	Hawikuh Glaze/R	-	-	-	-	0.11	-	-	-	-	-	-	0.06
Pueblo Period													
LOCAL	Arboles B/W	-	0.39	-	-	0.22	-	-	-	-	-	-	0.25
	Arboles Gray	28.85	5.99	36.01	0.10	27.17	2.58	68.42	22.22	30.77	26.22	60.00	33.92
	Arboles Neckbanded	-	0.39	0.10	-	0.62	0.34	-	-	-	5.49	-	1.00
	Arboles Plain	1.92	-	-	-	0.28	-	-	5.55	-	1.22	-	0.29
	Bancos B/W	-	-	-	-	0.95	-	10.53	-	3.85	-	-	0.65
	Piedra B/W	1.92	0.39	-	-	1.29	-	5.26	5.55	-	3.05	10.00	1.16
	Piedra Gray	11.54	2.94	0.29	4.32	4.20	0.34	-	-	11.54	18.90	30.00	6.50
	Piedra Neckbanded	-	0.20	-	-	0.34	-	5.26	-	-	-	-	0.29
	Piedra Plain	-	-	-	-	0.11	-	-	-	-	-	-	0.06
	Piedra Brown	-	0.10	0.39	-	0.06	-	-	-	-	-	-	0.19
	Rosa B/W	-	0.20	-	-	0.62	-	-	-	-	-	-	0.42
	Rosa Gray	-	0.88	-	-	-	0.11	10.53	-	-	-	-	0.42
	Rosa Neckbanded	-	-	-	-	0.95	-	-	-	-	-	-	0.55
	Rosa Brown	-	-	-	-	0.22	-	-	-	-	-	-	0.13
TRADE	Cortez B/W	-	-	-	-	0.06	-	-	-	-	-	-	0.03
	Shato B/W	-	-	-	-	0.39	-	-	-	-	-	-	0.23
	Mancos Corrug.	51.92	3.53	17.96	-	38.26	1.46	-	66.67	46.15	29.27	-	33.20
	Payan Corrug.	1.92	3.14	19.14	1.67	18.65	0.56	-	-	7.69	15.85	-	19.92
	Moccasin Gray	-	1.86	-	-	-	-	-	-	-	-	-	0.61
	Chapin Gray	1.92	-	-	-	-	-	-	-	-	-	-	0.03
	Bluff B/R	-	-	-	-	0.06	-	-	-	-	-	-	0.03
TOTAL PER CENT		99.99	99.99			100.01		100.00	99.99	100.00	100.00	100.00	99.97
TOTAL SHERDS		52	1,019			1,785		19	18	26	164	10	3,093

LATE PIEDRA- EARLY ARBOLES PHASES

In Table 13, sherd types under each heading are listed in approximate order, from "early," at the bottom, to "late," at the top. A significant temporal and numerical break is noted between Rosa Black-on-White and Piedra Brown of the of the local Pueblo Period types, and between Moccasin Gray and Payan Corrugated of the trade Pueblo Period types. In each case, the sherds listed above the break are grouped into the late Piedra-early Arboles Phases. Those listed below the break are discussed subsequently as representatives of a Rosa Phase occupation.

Many of the types listed are new designations, based on detailed studies at Sambrito Village. Descriptions are in press (Dittert, et al, 1963b). Arboles Black-on-White, Piedra Black-on-White, Cortez Black-on-White, and Mancos Corrugated are discussed in Dittert, et al, (1961, pp. 147-150). In the survey report (Dittert, et al, 1961, p. 147), Bancos Black-on-White, is termed Rosa-Gallina Transition, following Hall (1944, Figs. 25 and 26).

The present instance is the first record of Shato Black-on-White in the Reservoir (Fig. 43f-g). Attributes are identical with the type description, except that the painted decorations resemble the Kana-a Black-on-White style, instead of the described, Black Mesa Black-on-White style (Colton, 1955, Ware 8B-Type 5).

Payan Corrugated, for purposes of laboratory analysis, is given type status. On the level of synthesis, Payan Corrugated probably should be considered a variety of Mancos Corrugated. The number of sherds and vessels present permits the following description.

NAME: Payan Corrugated

SYNONYM: Mancos Corrugated in part.

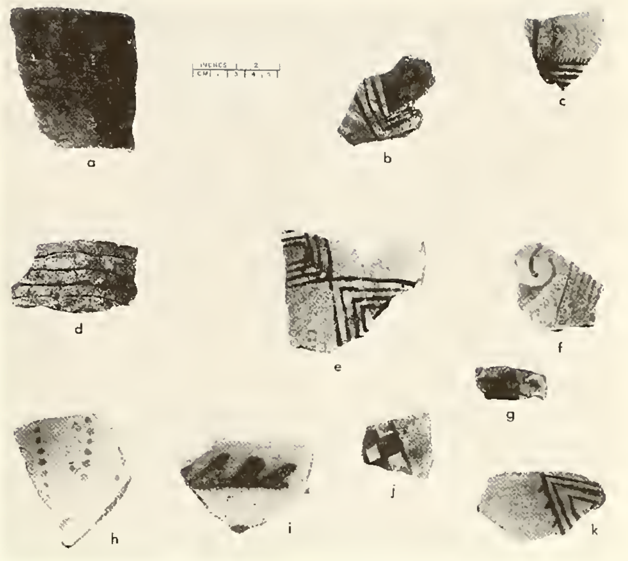

Fig. 43. Representative Pueblo Period pottery types, Railroad Site. a, Arboles Neckbanded; b, Arboles Black-on-White; c, Cortez Black-on-White; d, Moccasin Gray; e, Bancos Black-on-White; f-g, Shato Black-on-White; h-i, Rosa Black-on-White; and j-k, Piedra Black-on-White.

DESCRIBED BY: A. E. Dittert, Jr.

NAMED BY: A. E. Dittert, Jr.

ILLUSTRATIONS: Fig. 46

EXAMPLES: Museum of New Mexico

TYPE SITE: Railroad Site, LA 4103

STAGE: Pueblo II and early Pueblo III

TIME: ca. A.D. 950-1100

AREA OF ABUNDANCE: Unknown, but may be most abundant in eastern range of Mancos Corrugated.

DESCRIPTION: Identical with Mancos Corrugated except in surface texturing. After the indented, corrugated surface was formed, and while the clay was still damp, surface was pinched into ribbed designs. Troughs between ridges often finger-smoothed. Design layout usually

TABLE 14

OCCURRENCE OF CLAY ARTIFACTS BY PROVENIENCE, RAILROAD SITE

ARTIFACTS	PROVENIENCE						
	Pit House 1		Pit House 2		Surface Rooms		TOTAL
	Fill	Floor	Fill	Floor	Room 3	Room 4	
Vessels							
Bowls							
Shallow, Piedra Gray	-	-	-	1	-	-	1
Deep, Piedra Brown	-	1	-	-	-	-	1
Jars							
Arboles Gray	-	2	-	-	-	-	2
Payan Corrugated	-	2	1	-	-	-	3
Mancos Corrugated	1	1	-	-	-	-	2
Worked Sherds							
Discoid	1	-	3	-	-	-	4
Polygon	-	-	1	-	-	-	1
Whorl	-	-	1	-	-	1	2
Scoop	-	-	-	-	1	-	1
Secondary Vessel							
Shallow bowl	-	1	-	-	-	-	1
TOTAL	2	7	6	1	1	1	18

radiates from the base in a spiral pattern of curved or chevron ridges.

COMPARISON: Mancos Corrugated texturing is indented corrugations or patterned, plain, and indented corrugations.

CULTURAL ASSOCIATION: Similar or identical forms occur with Mancos Black-on-White in Ackmen-Lowry Area (Martin, 1938, Pl. CLXXVI); with Pueblo II village at Mesa Verde (Lancaster and Pinkley, 1954, Pl. 54, Row 4, Nos. 3,4); and dated, early Pueblo III in the La Plata District (Morris, 1939, Pl.271). Apparently, more common in the latter district than in the former areas.

ROSA PHASE

The occurrence of an assemblage of pottery types characteristic of the Rosa Phase, instead of single examples, suggests the previous existence of habitations during that period (Fig.43h-i). The structures were probably destroyed by later construction, and the sherds remaining intruded later deposits. A discussion of the types is included in Dittert, et al, (1961, pp. 135-152). When grouped together, the assemblage probably dates from the late part of the Rosa Phase, or about A.D. 825-850.

Clay Artifacts

Items considered clay artifacts are: vessels, worked sherds, and a secondary vessel. No complete vessels were recovered, but in seven examples, a sufficiently large portion is present, through reconstruction, to warrant a description. Provenience of specific items is listed in Table 14.

SHALLOW OPEN BOWL (1)

Bowls of this form are limited, in large part, to Piedra Black-on-White and Piedra Gray pottery types. The present example belongs to the latter type. Overall, it is sphere-segment-shaped, having a rounded base and walls that are a continuation of the arc. The rim is III A 3 (Colton and Hargrave, 1937, Fig. 2). Interior finish is better than in most Piedra Gray bowls. Size: diameter, 7.9 inches; height, 3.1 inches; wall thickness, 0.2 inches; volumn, 0.9 dry quarts (Fig. 44a).

DEEP OPEN BOWL (1)

An unusual example of a Piedra Brown bowl was recovered. The overall shape is an inverted, truncated cone having a slightly rounded base. Walls are straight and diverge about 5 degrees from vertical. The rim is III A 3.

As discussed in Dittert, et al, (1963b) Piedra Brown and Arboles Plain show a convegence of attributes, so that it is not always possible to make a clear separation. The above example could be included in the latter type. There is a marked departure from previously examined sherds, in that the bowl is decorated with carbon paint. Design is Rosa style with a spiral transverse layout. The element on the bottom is a circle with radiating ticks. Originating at the circle, and extending in a spiral to a line band below the rim, is a cross-ticked line. All of the lines are approximately the same width, that is, 0.27 inches. The continuation of brownware manufacture is seen as the persistence of an older trait; the occurrence of an older, decorative style and bowl form can be expected. Size: diameter, 3.8 inches; height, 3.4 inches; wall thickness, 0.2 - 0.25 inches; volume, 0.27 dry quarts (Fig.44b).

JARS (7)

Three pottery types are represented as jar forms. These are: Arboles Gray - 2, Payan Corrugated - 3, and Mancos Corrugated - 2.

Arboles Gray (2)

Both are large jars having similar attributes of temper, paste, and finish. Forms are markedly different. The body of one is globular and has a rounded base, medial rounded shoulder, and incurved upper walls. The neck is a converging extension of the upper wall. Rim is I A 3. Two opposed, horizontal tri-fillet handles are riveted through the body wall just below the shoulder. Size: diameter, 12.3 inches; height, 17.2 inches; wall thickness, 0.2-0.25 inches; orifice, 6.5 inches; volume, 15.9 dry quarts (Fig.45a).

The second jar has a bi-lobed body; the constriction is caused by a depressed, encircling groove. The base is rounded and the upper wall incurved. There is no distinct separation between the upper walls and the recurved, compressed neck. Rim is II A 2. Two opposed, inset handles are located just below the mid-point of the vessel height. Size: diameter, 13.5 inches; height, 18.2 inches; wall thickness, 0.2-0.25 inches; orifice, 5.8 inches (Fig. 45b).

Payan Corrugated (3)

The major difference found among the three vessels is one of size; minor variations exist in the shape and texturing. Both the larger vessels have a blunt-pointed base, maximum diameter in the lower third of the vessel, and slightly recurved, upper walls. Over-all shape of

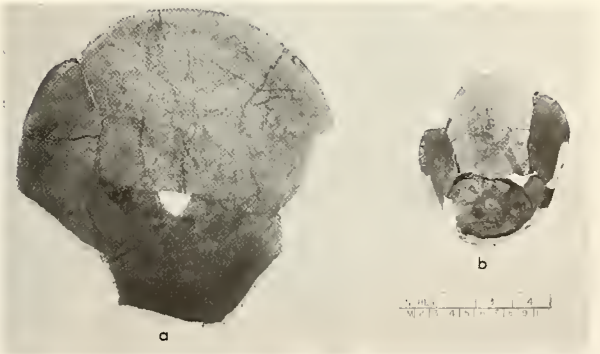

Fig. 44. Bowl forms, Railroad Site, a, Piedra Gray, shallow open bowl; b, Piedra Brown deep open bowl.

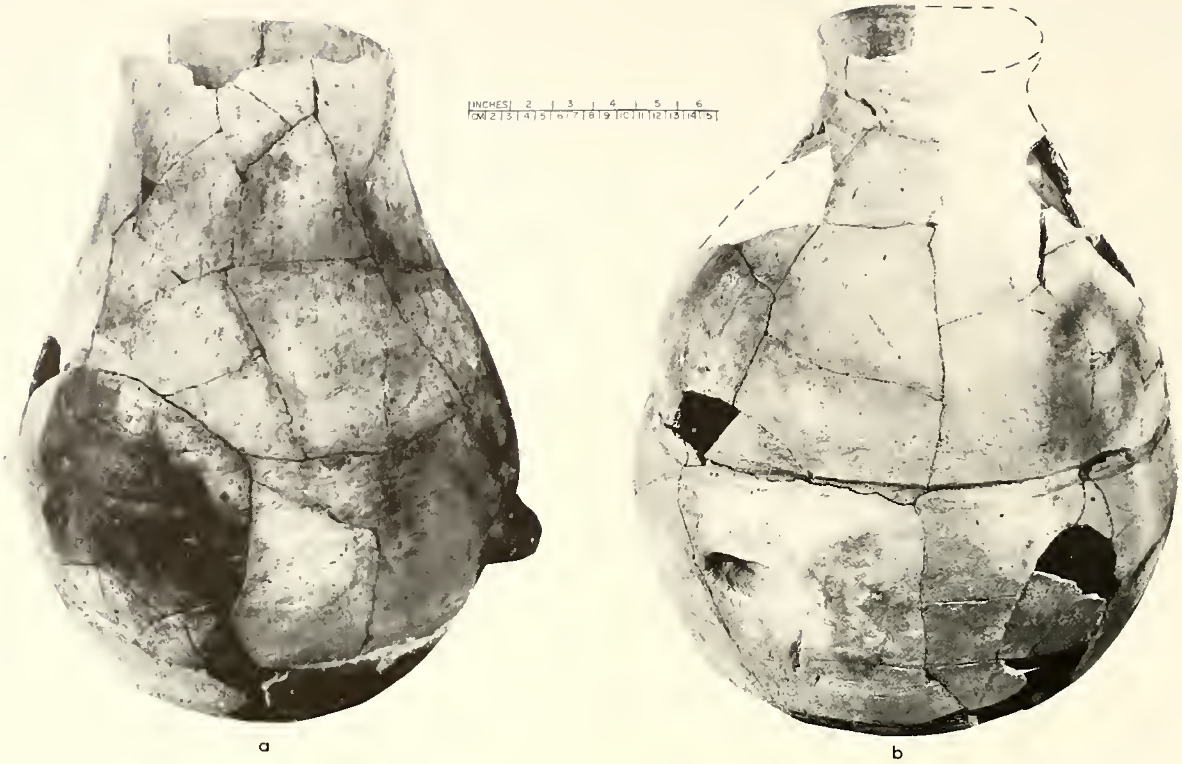

Fig. 45. Arboles Gray jars, Railroad Site. a, globular body; b, bilobed body.

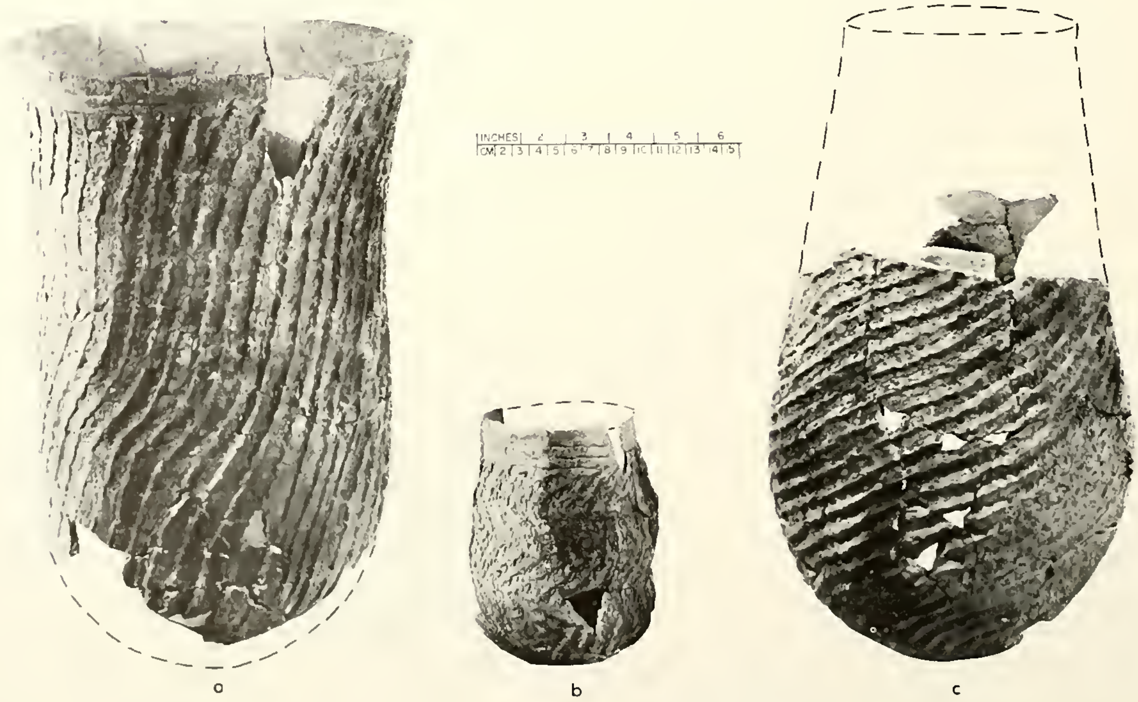

Fig. 46. Payan Corrugated jars, Railroad Site. a, cylindrical body form; b, small form; c, globular body form.

one is cylindrical (Fig. 46a); the body of the other is slightly globular (Fig.46c). Surface texturing design on both is similar; the only variations occur in the form of a pronounced spiral on the smaller jar and of almost vertical, wavy ridges on the larger jar. Rims are I A 7. Size: diameters, 10.1 and 8.9 inches; heights, 15.5 and 15.7 inches; wall thicknesses, 0.25 and 0.3 inches; orifices, 9.8 and about 7.1 inches.

The smallest jar has a normal, truncated-cone shape, a rounded base, maximum diameter in the lower third of the vessel, and almost straight, converging, upper walls. Texturing has been obliterated on the base; ridges on the wall form a zig zag design. Troughs between the ridges have not been smoothed. Rim is I A 7. Size: diameter, 4.7 inches; height, 6.1 inches; wall thickness, 0.2 inches; orifice, 3.8 inches; volume, 0.77 dry quarts (Fig. 46b).

Mancos Corrugated (2)

The form of one fragmentary vessel differs from the normal, Mancos Corrugated shape in having a pronounced globular body. Unfortunately, the base and neck are not present. Texturing of the surface consists of alternating bands of plain and indented corrugations. The indented areas have been manipulated into diagonal ridges, similar to Payan Corrugated. However, these ridges were not formed by pinching, as in the latter type. Size: diameter, 12.0 inches; wall thickness, 0.2-0.25 inches (Fig.47b).

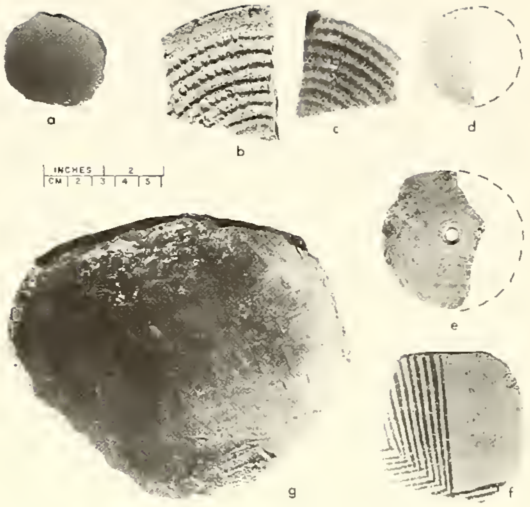

Fig. 48. Worked sherds, Railroad Site. a, discoid; b, discoid fragment with basket impressions; c, latex cast of basket impressions on b; d-e, whorl fragments; f, polygon; and g, scoop.

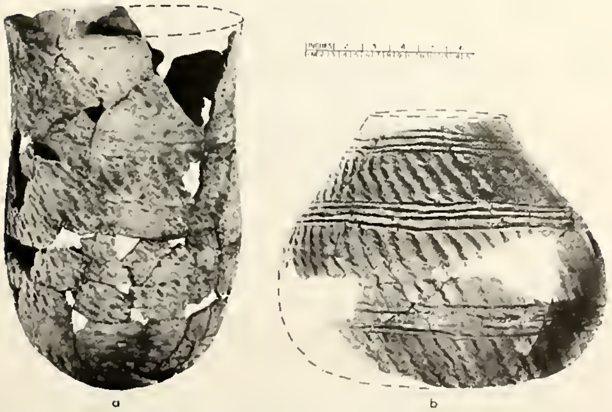

Fig. 47. Mancos Corrugated jars, Railroad Site. a, cylindrical body form; b, globular body form.

A second jar of Mancos Corrugated has a cylindrical, over-all shape. The base is hemispherical and the upper walls, almost parallel. Rim is IA7. Texturing occurs over the entire surface and consists of wide bands of indented corrugations, separated by narrow bands of plain corrugations. The indented, corrugated areas exhibit very little relief when compared with the majority of Mancos Corrugated sherds from the site. Size: diameter, 8.9 inches; height, 14.7 inches; wall thickness, 0.15-0.25 inches; orifice, 8.8 inches (Fig. 47a).

WORKED SHERDS (8)

The eight recovered sherds were originally modified into useful forms by removing portions of the wall to achieve a desired shape. Apparently, modification was accomplished by pressing the edge against a resistant object or striking the wall near the edge with a hammerstone. The edges are ground to a variable extent; grinding on the surface is limited to a small portion of the convex side but was not sufficient to change the original sherd thickness.

The four forms recognizable, are: discoids - 4, polygon - 1, whorls - 2, and scoop - 1 (Fig. 48). In addition to shape differences, the whorls and the polygon exhibit more grinding of the edges than do the other forms. Also, whorls have a centrally located, bi-conical hole. One discoid fragment with basket impressions is described in a later section.

The scoop designation for one of the objects is suggested by the type of wear on two portions of the edge. However, the item would serve equally well for a shallow container.

A preference is expressed by the Indians for a relatively flat, non-textured sherd. The scoop deviates in being made from a sphere-segment-shaped sherd. Pottery types represented are: Bluff Black-on-Red - 1, Piedra Black-on-White - 1, Piedra Gray - 1, and Arboles Gray - 5. Size: discoids, diameters, 1.5-2.4 inches; polygon, length, 2.5 inches; width, 2.4 inches; whorls, diameters, 1.6 - 2.4 inches; hole diameter, 0.2 inches; scoop, length, 5.5 inches; width, 4.7 inches.

SECONDARY VESSEL (1)

The base of a large Mancos Corrugated jar exhibits secondary use as a container (Fig. 49). Uneven portions of the edge are removed to a uniform level and are ground. The resultant shape is similar to shallow bowl forms of Piedra Gray. Size: diameter, 9.0 inches; height, 2.3 inches; wall thickness, 0.25 inches.

Stone Artifacts

The stone artifact group consists of forms that can be expected from a late Piedra-early Arboles Phase time period in this part of the Reservoir District. However, most of the individual artifacts occur throughout long time spans, and are not useful in delimiting short periods. An exception is the projectile point, which, while it is a good horizon marker, probably is intrusive or reused from the destroyed Rosa Phase component of this site.

The lack of pressure and percussion-worked artifacts and of manufacture discard materials is a puzzle. This is especially true because of the occurrence among the antler artifacts of a pressure-chipping tool and a punch for indirect percussion.

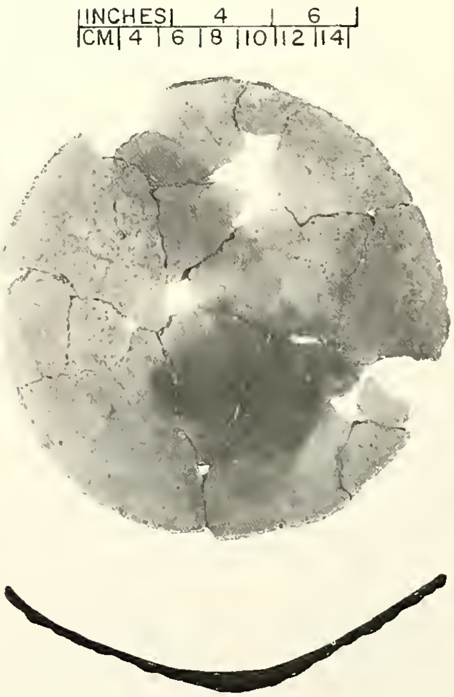

Fig. 49. Secondary vessel, Railroad Site. Base of a Mancos Corrugated jar, modified to form a shallow bowl.

TABLE 15

OCCURRENCE OF ARTIFACTS BY PROVENIENCE, RAILROAD SITE

ARTIFACTS	PROVENIENCE										
	Pit House 1		Pit House 2			Room 2	Room 3	Room 4	Post Hole		
	Fill	Floor	Fill	Roof Fall	Floor	Fill	Fill	Fill	Cluster	Surface	TOTAL
Stone Artifacts											
Projectile Point	-	-	-	-	-	-	1	-	-	-	1
Blade	-	2	-	-	-	-	-	-	-	1	3
Scraper	-	-	-	-	-	-	-	-	-	1	1
Utilized Flakes	-	-	2	-	-	-	-	-	-	-	2
Chopper	-	1	-	-	-	-	-	-	-	-	1
Hammer	-	2	-	-	-	3	-	-	-	-	5
Axe	-	-	2	-	-	1	-	1	3	-	7
Maul	-	-	2	-	-	-	-	-	-	-	2
Polisher	-	1	2	-	5	-	-	1	-	1	10
File	1	-	-	-	-	-	-	-	-	-	1
Pestle	-	-	-	-	-	-	-	1	1	-	2
Mortar	1	-	-	-	-	-	-	-	-	-	1
Metate	4	7	-	-	2	-	-	-	1	-	14
Mano	7	2	2	3	3	-	-	1	5	-	23
Slab Cover	-	-	-	-	-	-	1	-	1	-	2
Grinding Pallet	-	-	-	-	-	-	-	1	-	-	1
Worked Reddle	-	-	1	-	-	-	-	-	-	-	1
Kaolinite	-	-	-	-	-	-	-	3	-	-	3
Natural Cup	-	-	-	-	-	-	-	1	-	-	1
Bone Artifacts											
Awls											
Fragments	-	3	2	-	-	-	-	-	-	-	5
Straight Tip	1	1	1	-	-	-	-	-	-	-	3
Concave Tip	1	-	-	1	-	-	-	-	-	-	2
Convex Tip	1	-	-	-	-	-	-	-	-	-	1
Punch	-	-	-	-	-	1	-	-	-	-	1
Worked Rib	-	-	-	-	-	1	-	-	-	-	1
Pendant	-	-	-	-	-	-	2	-	-	-	2
Antler Artifacts											
Flesher	-	-	1	-	-	-	-	-	-	-	1
Wedge	-	-	-	1	-	-	-	-	-	-	1
Chipper	-	-	1	-	-	-	-	-	-	-	1
Percussion Punch	-	-	-	-	-	-	1	-	-	-	1
Worked Fragment	-	-	1	-	-	-	-	-	-	-	1
TOTAL	16	19	17	5	10	6	5	9	11	3	101

In the following descriptions of artifacts, the system of analysis and the methods and measurements will follow those established for Sambrito Village (Dittert, et al, 1963b). Explanations and definitions are therefore brief.

PROJECTILE POINT (1)

The stem and tangs of the projectile point are missing, but other attributes imply a Triangular, Corner Notched form in the small point tradition (Dittert, et al, 1963b). Sides of the blade are sharply concave, and the length is short in relation to the width when compared to similar forms from Sambrito Village (Ibid.). The blade is bifacially chipped from translucent, cream-colored chalcedony. In the sequence found at Sambrito Village, this form is associated with the Rosa Phase. Size: length, 0.5 plus inches; width, 0.6 inches; thickness, 0.15 inches (Fig. 50a).

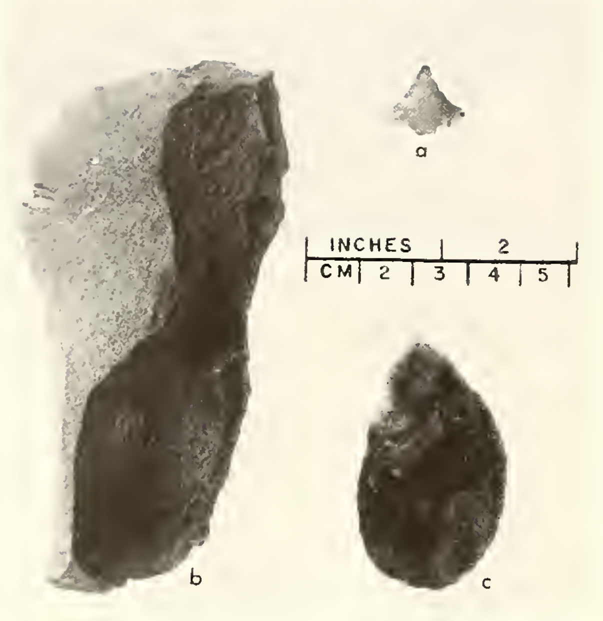

Fig. 50. Projectile point, scraper, and blade, Railroad Site. a, Rosa Phase style point; b, end scraper; c, blade.

BLADES (3)

Two are complete; one is a fragment. All might be placed in the Ovoid category established from Sambrito Village (Dittert, et al, 1963b), even though one is somewhat asymetrically angular. The latter is less evenly worked, and is close to a knife in character. However, it is the only one of the three which shows appreciable pressure retouch. All are made by bifacial percussion-flaking on the perimeter of primary flakes. Materials are: petrified wood, chert, and Pedernal chalcedony. Size: lengths, 1.95 and 1.4 inches; widths, 1.1 and 1.05 inches; thicknesses, 0.4 and 0.35 inches; weights, 0.48 and 0.23 ounces; angle of edge, 53 and 41 degrees (Fig. 50c).

SCRAPER (1)

A percussion-flaked end-scraper is made from a large, primary flake of fine-grained quartzite. The slightly convex, scraping edge runs diagonally across the end of the flake. One long edge has been shaped and straightened by percussion-trimming. Scrapers of this form were not found at Sambrito Village (Dittert, et al, 1963b), but were noted for Pueblo Period sites in the survey (Dittert, et al, 1961, p. 180). Size: length, 4.1 inches; width, 2.0 inches; thickness, 1.2 inches; weight, 3.86 ounces; angle of edge, 75 degrees (Fig. 50b).

UTILIZED FLAKES (2)

One flake was used for scraping, and the other for cutting. Both are primary flakes and show no modification other than that produced by use. The materials are chalcedony and chert. Weights are 0.84 and 1.06 ounces.

CHOPPER (1)

This is a large, flat, rounded-rectangular pebble of medium-grained, igneous rock, which has a flaked, chopping edge on one end. Large flakes were driven off on one side of the edge and small ones on the other side. The rock could be used in one or both hands. It is unlikely any of the artifacts from Sambrito Village in its shape (Dittert, et al, 1963b). Size: length, 7.1 inches; width, 5.75 inches; thickness, 1.4 inches; weight, 53.65 ounces; angle of edge 64 degrees (Fig. 53c).

HAMMERS (5)

In this group are two Pebble hammers of quartzite, two Core hammers of chert, and an Edged hammer of igneous material. Description of these sub-types is given in (Dittert, et al, 1963b). A Pebble hammer and the Edged hammer were found in metate troughs the floor of Pit House 1, and may have been used to sharpen the respective metates. One shows extensive use. Weights: 5.56 - 80.46 ounces (Fig. 51b).

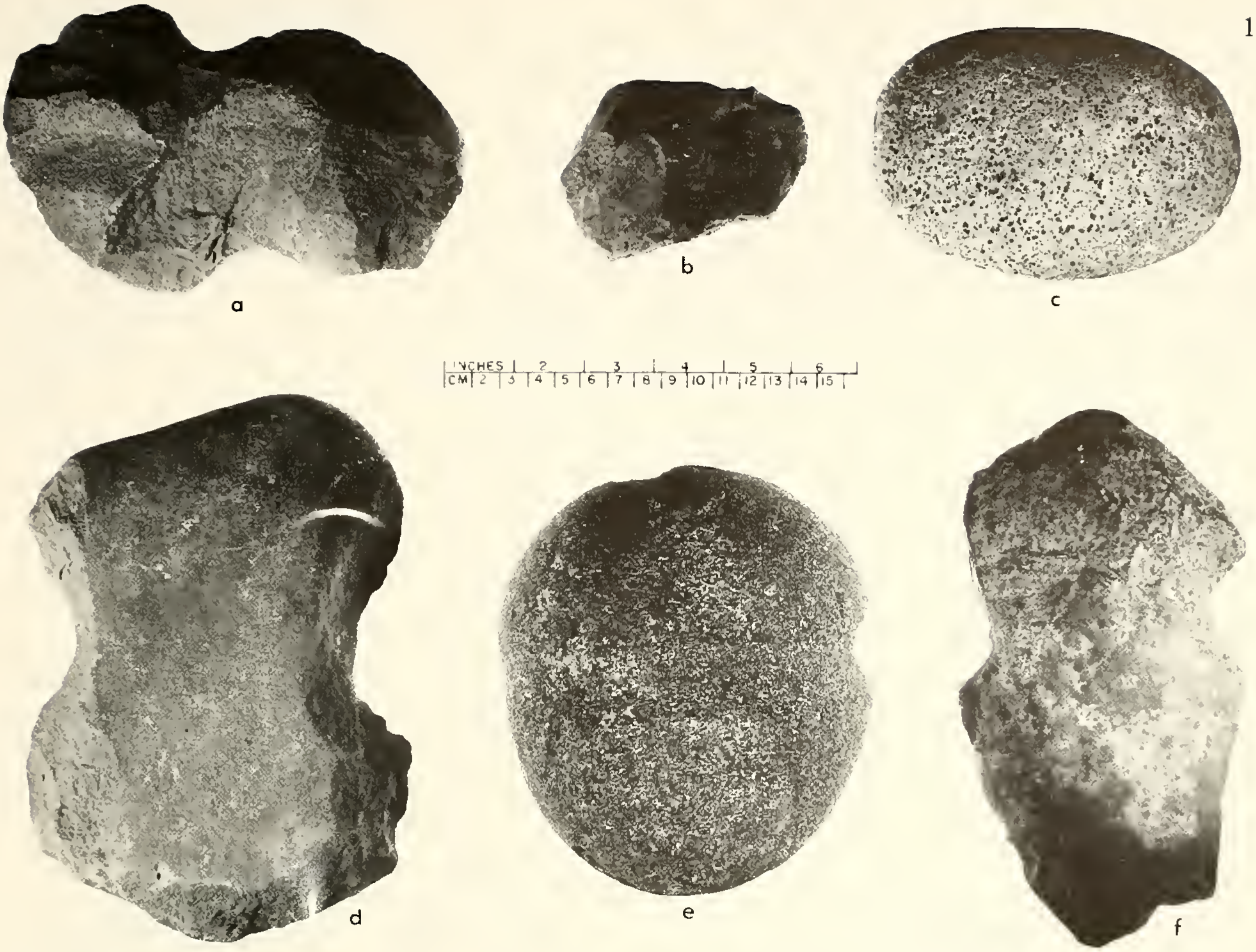

Fig. 51. Axes, hammer, maul, and polisher, Railroad Site. a, double-bit flaked axe; b, hammer; c, polisher; d, single-bit flaked axe; e, maul; f, ground axe.

AXES (7)

The seven axes recovered were all hafted, chopping tools, which exhibit considerable variety. Two form varieties are present: one, fashioned principally by flaking, and the other by grinding. As at Sambrito Village, both kinds were found together. This may indicate a use difference, or that the ground axe was in the process of replacing the flaked axe since ground axes are not found in a Rosa Phase context.

Of the four flaked axes, three are made from cobbles of quartzite, and one from a large quartzite flake. Two of the cobble axes are single-bitted, and the flaking which produces the use edge is basically unifacial. These might have been used as hoes, although no polish is visible owing to soil abrasion. The other cobble axe is double-bitted and bifacially worked. The flaked, side notches are all located about in the center of the head, and are pecked slightly to dull them. The poll end of the axe made from a flake is missing; it originally might have been double-bitted. The notches and the cutting bit edge are only lightly flaked.

Ground axes are represented by one whole specimen and two broken bits. The whole axe has a large chip broken out of the edge, but it continued to be used for some time after this occurred. The original edge was small in relation to the size of the axe. It is pecked and ground from a cobble of coarse hornblendite. Side notches are placed two-thirds of the way from the bit to the poll end, and are deeply worked. On one face, a natural depression has been augmented by grinding, to form a groove between the notches. The two broken bits were parts of axes shaped, primarily, by grinding, although the small parts of the notches present show that these were also pecked. The workmanship on these bits is much superior to that on the whole axe. One axe is made of hornblendite and the other of felsite. The presence of the broken bits, without the complementary polls, may mean that these were still considered useful tools. Size: length, 5.1 - 7.3 inches; width, 3.8 - 5.3 inches; thickness, 1.1 - 1.8 inches; flaked axe edge angles, 49 - 66 degrees; ground axe edge angles, 55 - 56 degrees (Fig. 51a, d, f).

MAULS (2)

Both of the mauls are made from oval-shaped cobbles, one quartzite and one igneous. They have been fashioned by pecking hafting grooves around their centers. The smaller one is battered on both ends owing to use; the groove does not completely cross one flattened side. The other tool is larger, and has a deeper groove. A secondary, hafting groove was pecked across the poll. It shows little evidence of use. Size: length, 6.1 and 5.7 inches; width, 4.2 and 5.1 inches; thickness, 2.7 and 3.4 inches; weight, 51.35 and 81.54 ounces (Fig. 51e).

POLISHERS (10)

Like the polishers from Sambrito Village (Dittert, et al, 1963b), the ten recovered from the Railroad Site are small cobbles and large pebbles, which have been used for smoothing and rubbing something softer than stone. No modification is apparent other than those smooth areas produced by use. The polishers are too large to have been used on pottery. Weights: 6.1 - 44.95 ounces (Fig. 51c).

FILE (1)

Like the files from Sambrito Village (Dittert, et al, 1963b), this tool is an elongate cobble of medium-grain sandstone. A facet along one side has resulted from grinding in the fashion of a file. Size: length, 5.5 inches; width, 1.5 inches; thickness, 1.0 inches.

PESTLES (2)

Naturally shaped, elongate quartzite cobbles have been used for pounding and crushing, probably in shallow mortars like the one described in the following section. The ends of both specimens have been heavily used; there is no other modification. Size: length, 7.8 and 8.7 inches; width, 3.0 and 4.0 inches; thickness, 1.6 and 2.4 inches (Fig. 52b).

MORTAR (1)

A quartzite cobble with a natural, shallow depression on one face had been used as a base for pounding and crushing some material, possibly seeds or dry meat. A shallow, mortar basin was developed from this use. It is not deep enough for effective, rotary grinding, and no evidence exists of such use on either

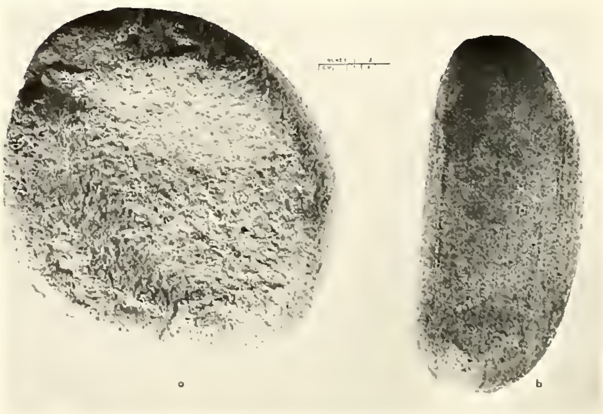

Fig. 52. Mortar and pestle, Railroad Site. a, shallow mortar; b, pestle.

the mortar or the pestles. Some of the pecking may be intentional to deepen the basin, but most seems to be the result of use. No other modification is apparent. Size: length, 9.6 inches; width, 8.4 inches; thickness, 5.8 inches; basin diameter, 5.5 inches; basin depth, 0.65 inches (Fig. 52a).

METATES (14)

The recovered metates are Open-End Trough forms like those from Sambrito Village (Dittert, et al, 1963b). Following the same form of analysis, six are Type D, four are Type C, two are Type B, and two are incipient. These categories include a relatively high number of metates with troughs having straight sides and flat bottoms. Although the group on Pit House 1 floor is of mixed types, there is an indication that Type D metates increase in frequency through time. Ten specimens show some pecking or grinding of the edges and ends to shape the block. No mano rests occur. Three of the specimens were made from quartzite boulders, and eleven from sandstone blocks. Wear stages represented are: incipient - 2; new - 2; used - 8; and worn - 2.

One of the metates in place on the floor of Pit House 1 was in a mealing bin, a very unusual feature for the Pueblo Period in the Reservoir District. This metate is a new Type B form, made of a quartzite cobble. Size: overall length, 16.4 - 27.0 inches; width, 10.4 - 18.0 inches; thickness, 2.7 - 6.4 inches; trough length, 14.8 - 21.3 inches; trough width, 6.9 - 12.1 inches; trough depth, 0.0 - 2.6 inches (Fig. 53b).

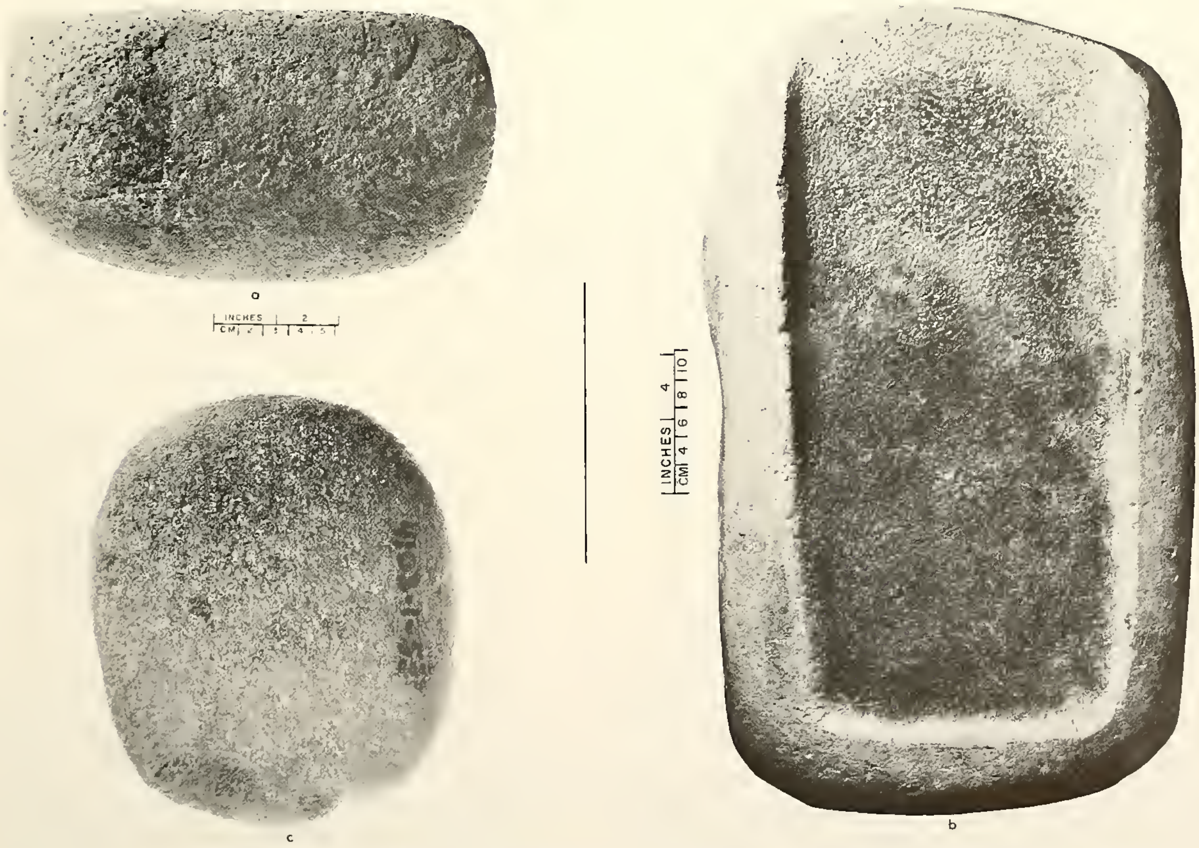

Fig. 53. Mano, metate, and chopper, Railroad Site. a, mano; b, open-end trough metate; c, chopper.

MANOS (23)

All twenty-three of the manos are two-hand types, used in trough metates. Comments made on the manos from Sambrito Village (Dittert, et al, 1963b), are generally applicable to this group. All are uniface and only two have a distal finger groove. Eleven of the specimens are unused; five are new; six are used; and one is worn. Size: length, 3.8 - 6.8 inches; width, 7.1 - 11.8 inches; thickness, 0.7 - 2.6 inches (Fig. 53a).

SLAB COVERS (2)

Both of the slab covers are about the same size and are suitable for jar lids. They were formed from thin slabs of sandstone, one stone is of a micaceous type used for Arboles Phase pottery temper. The slab covers have been trimmed to a roughly circular shape by percussion. Size: maximum diameter, 5.1 and 5.6 inches; thickness, 0.7 and 0.38 inches.

GRINDING PALLET (1)

Although incomplete, the grinding pallet is a flattened, rectangular-shaped, sandstone cobble modified only by use. Both faces exhibit elongated areas, where a soft material has been ground. This use produced slightly concave depressions with fine, longitudinal striations. Size: length, 4.8 plus inches; width, 4.2 inches; thickness, 1.6 inches.

WORKED REDDLE (1)

A lump of reddle shows marks of grinding on one side. It was probably raw material for an ornament or similar object which was never completed (reddle is not a good paint source). Size: length, 1.22 inches; width, 1.0 inches; thickness, 0.45 inches.

KAOLINITE (3)

Three unworked lumps of kaolinite may have been intended for use as pottery slip. Size: length, 1.1 - 1.3 inches; width, 0.8 - 1.1 inches; thickness, 0.6 - 0.7 inches.

NATURAL CUP (1)

A fragment of a water-worn, conglomerate boulder contains a natural, deep, cup-like depression. There is no evidence that this rock was humanly modified in any way, but it may very well have been used in its natural state for some purpose which left no mark. Size: length, 5.4 inches; width, 5.4 inches; thickness, 2.6 inches; diameter of cup, 1.6 inches; depth of cup, 1.5 inches.

LITHIC MANUFACTURE DISCARD (49)

Relatively little manufacture discard material comes from this site, a fact which probably correlates with the relative scarcity of pressure and percussion-worked tools. Surface collections produced only two flakes of concoidal material, one each of petrified wood and chalcedony. Only five fragments of even-fracturing material, namely, two quartzite and three chert, and one of irregular fracturing sandstone were found.

Room 1 yielded a small flake of clear obsidian and a flake of a compact, conchoidally fracturing limestone. The fill of Pit House 2 produced the most material: seven conchoidal flakes, namely, one of jasper, four chert, and two chalcedony; twenty-one even-fracture flakes, namely, one quartzite, sixteen chert, and four igneous; and eleven irregular-fracture fragments, one igneous, one limestone, five sandstone, and four chert.

Bone Artifacts

Most of these tools are made from split long bones of large mammals, probably deer and mountain sheep canon bones for the most part. None of the bones are specifically identified, but they are comparable in shape and size to identified material from Sambrito Village. This collection of bone artifacts, although small, is typical of late Piedra and early Arboles Phase materials. The use of split canon bones and the strong preference for perforating tools are characteristic, as is the lack of splinter-and bird-bone tools. The scapula pendants, however, are unique.

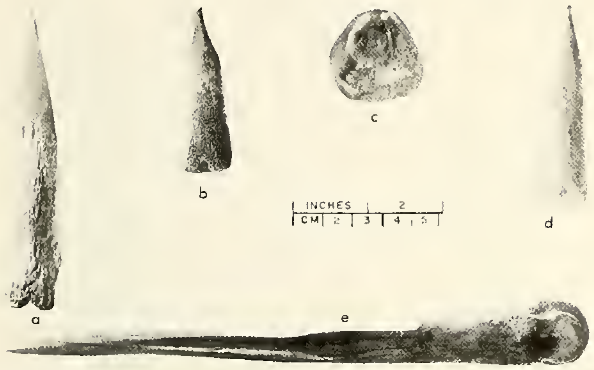

Fig. 54. Bone artifacts, Railroad Site. a, straight tip awl; b, concave tip awl; c, scapula pendant; d, punch; e, convex tip awl.

AWLS

All of the awls that were recovered were made from split long bones of large mammals. Five are fragments without tips and, so, are not classifiable. They may not be awls, but remaining parts are identical with comparable awl parts. One example is of particular interest because it has two side notches, connected by a shallow groove, just below the articular end. This device probably accommodated a cord or thong by which the tool could be suspended from the craftsman's wrist and be kept close at hand while work was in progress.

Straight Tip Awls (3)

All specimens of Straight Tip awls are in a poor state of preservation, and the eroded, articular ends suggest only partial modification. The points of two specimens are in poor condition. It is possible to assign them to the Straight Tip category with the qualifications that they had not been used enough to develop an appreciable shoulder, an attribute which occurs in well used, Straight Tip awls. The third had not been much used and the striations produced in shaping the point are very distinct. Only a slight use polish is present at the tip. Size: length, 4.0 - 9.6 inches; width, 0.75 - 0.9 inches; thickness, 0.5 - 0.6 inches; tip length, 1.85 - 2.9 inches; tip angle, 12 - 18 degrees (Fig. 54a).

Concave Tip Awls (2)

The base of one of the Concave Tip awls and the tip of the other are missing. Slight modification by grinding is noted on the base that is present. The awl which has a complete tip shows very little use. Size: length, both incomplete; width, 0.75 inches; thickness, 0.5 inches; tip length, 0.75 inches; tip angles, 21 and 27 degrees (Fig. 54b).

Convex Tip Awl (1)

A long Convex Tip awl in good condition, has been used extensively. The articular end is unmodified. The tip is thick and convex-sided, merging into a straight shaft. A high polish from use extends from the tip back 3.8 inches. A suggested use is in the manufacture of basketry or netting. Size: length, 7.9 inches; width, 0.95 inches; thickness, 0.7 inches; tip angle, 13 degrees (Fig. 54e).

PUNCH (1)

Many attributes of the punch recovered are similar to a short Straight Tip awl having an unmodified, articular end. An exception exists in the fact that the tip is blunt and smooth from use. The use polish extends 0.3 inches back from the tip. Size: length, 2.9 inches; width, 0.9 inches; thickness, 0.5 inches (Fig. 54d).

WORKED RIB (1)

A section of a large mammal rib, possibly elk, has been chopped, cut, and broken on one end. It is fragmented, and no other apparent modification or indication suggests that this was used as a tool. Size: length, 7.9 plus inches; width, 1.2 inches; thickness, 0.5 inches.

PENDANTS (2)

The scapulae of a medium-size animal have been rounded, flattened, and drilled at the articular ends to form a pair of pendants. They are the only ornaments from this site. Size: length, 1.3 and 1.4 inches; width, 1.2 and 1.3 inches; thickness, 0.1 inches (Fig. 54c).

Antler Artifacts

Worked antler is represented by four classifiable artifacts and one fragment. None of these, however, can be specifically identified as either elk or deer antler, although the flesher and wedge are both large enough to suggest elk. All these artifacts were made using the complete diameter of the beam or tine, and are not split sections or cut strips. In line with the findings at Sambrito Village, some strip artifacts would be expected, but the collection from this site is small, and the absence of artifacts made from strips of antler may be accounted for based on chance. The relatively large number of antler artifacts conform with the finding at Sambrito Village of a progressively greater use of antler through time.

FLESHER (1)

The use edge and the base of the flesher are missing, but the worked portion, which is present, is angled in a manner indicating a flesher, rather than a wedge. A dented area on one side of what remains of the use end resembles that on a pick point from Sambrito Village (Dittert, et al, 1963b). This raises the possibility that this tool, also, might have been a pick. No complete measurements are possible (Fig. 55c).

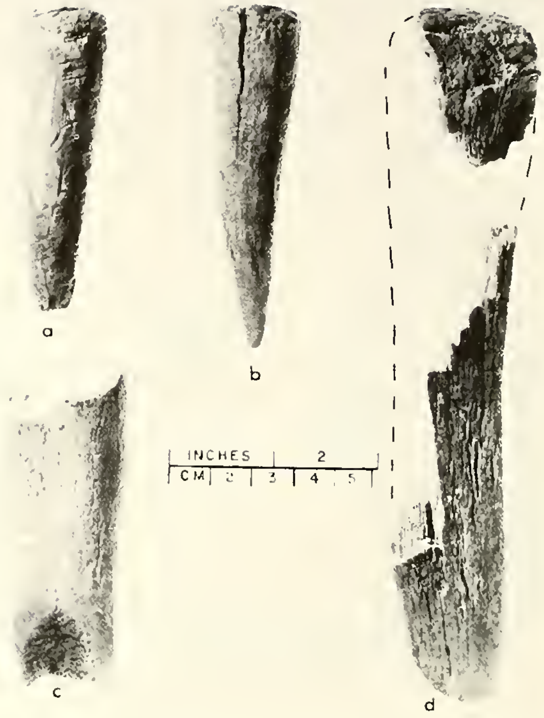

Fig. 55. Antler artifacts, Railroad Site. a, percussion punch; b, chipper; c, flesher; d, wedge.

WEDGE (1)

The use edge and a part of the base are present on this fragmentary and eroded tool. Like the wedges from Sambrito Village (Dittert, et al, 1963b), the use edge is symmetrically formed by bifacial grinding, and appears to have been directly in line with the center of the tine base. The fragmentary base shows that the tine from which this tool was made was carved off at the point where it joined the beam of the antler. The base is flat and may have been pounded upon. Only the width of the use edge, 0.9 inches, and the edge angle, 55 degrees, can be measured (Fig. 55d).

CHIPPER (1)

A short, sharply pointed tine, probably from a deer antler, shows the marks of use as a fine, pressure-chipping tool. Apparently, it had only a moderate amount of use since the typical chipping seat is not strongly developed. The tine tip was separated from the antler by carving an encircling groove through the hard, outer layer of the antler, and, then by breaking it. Size: length, 3.2 inches; width, 0.9 inches (probably less before it dried and split); thickness, 0.7 inches (Fig. 55b).

PERCUSSION PUNCH (1)

This tool is similar to the chipper, described above, except that the tine tip is thicker and straighter. The tip end is chipped and fractured, as though it had been placed against something resistant, such as a stone core, and then struck on the base. The base is flattened in a manner suggesting percussion, even though no flakes have been detached from the base, as may be observed on the wedge type tool. One whole side of the tool shaft from tip to base shows such cuts and scrapes as would be expected if it was used in stone working. Size: length, 2.85 inches; width, 0.85 inches; thickness, 0.83 inches (Fig. 55a).

WORKED FRAGMENT (1)

A small antler fragment may be part of the base of a wedge. It shows the cut, battered edge, flakes being driven off by direct blows, typical of wedge bases. It also appears to be part of a section of an antler of fairly large diameter, possibly that of an elk.

Hide Artifact

In the fill of the post hole cluster was found a wadded-up piece of worked animal hide. Cleaned and straightened out, it is an irregular square of hide from some large mammal, probably a big deer or an elk, judging by thickness. The hair has been imperfectly scraped and deep, parallel cuts cover the flesh side. The incisions extend about halfway through the hide, and the distance between cuts is 0.2 to 0.3 inches. The cuts may have been made to render the hide more flexible. No other modifications are apparent, and the intended use of this hide fragment is unknown. Size: longest side, 6.3 inches; shortest side, 5.0 inches; thickness, 0.1 inches (Fig. 56).

Basketry Impressions

Impressions of a basket, in which manufacture of the pottery vessel began, are well enough preserved on two pot sherds to warrant a description. The

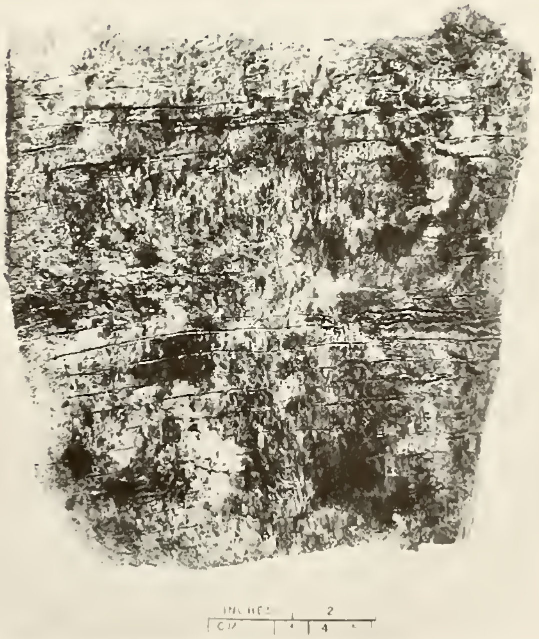

Fig. 56. Hide showing flesh side with parallel cut marks, Railroad Site.

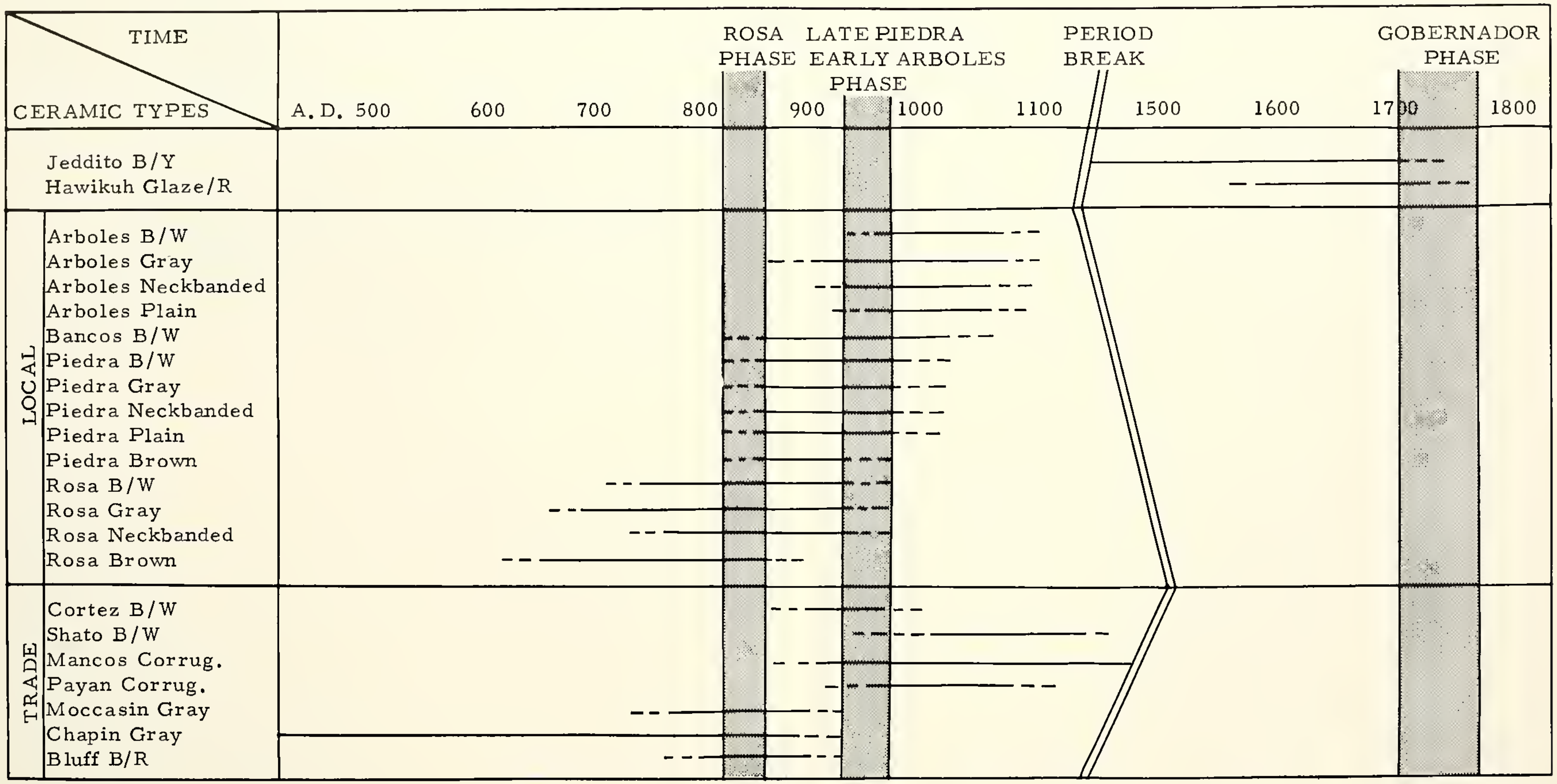

Fig. 57. Time span of ceramic types, Railroad Site. Vertical sections indicate periods of occupation.

better impression of the two is on an Arboles Gray sherd (Fig. 48b-c); less well defined impressions are on an Arboles Black-on-White sherd.

In both the above cases, the original basket was close-coiled, having non-interlocked stitches slanting from left to right. The Arboles Gray example shows nine to ten stitches per inch; the Arboles Black-on-White impressions, eight stitches per inch. Number of coils per inch range from five on the Arboles Gray to three and one-half on the Arboles Black-on-White. In neither case are the foundations identifiable. Evidences of a self rim are preserved on the Arboles Black-on-White sherd.

CHRONOLOGY

The site chronology is based primarily on the occurrence of distinctive local and trade pottery types. Time intervals are based on the type descriptions for the trade sherds, and on the analysis of ceramics at Sambrito Village for the local forms (Dittert, et al, 1963b). The ceramic and temporal data are expressed graphically in Figure 57, along with the estimated, occupation intervals. It was not possible to derive dates from the specimens recovered for dendrochronology.

In the previous ceramic section, three occupations of the location are identified. The latest, a Gobernador Phase structure of A.D. 1700 - 1775, has not been excavated. However, sherds from the unit were included in the collection from the fill of Pit House 2 (Table 13).

The major manifestations remaining at the site represent the late Piedra and early Arboles Phases, or about A.D. 925 - 975. Within this period, the distribution of pottery types permits a relative, temporal ordering of the structures. Pit House 2 is the older of the two pit houses, and, while the tenancy apparently overlapped, Pit House 2 was abandoned while Pit House 1 was still occupied. The large number of sherds in the fill of Pit House 2 represents material discarded by the occupants of Pit House 1. Sherds from the surface rooms and from the Post Hole Cluster indicate that these units were still used until abandonment of the site, and can be considered as part of the Pit House 1 component.

A relatively large number of Rosa Phase sherds, dating about A.D. 825 - 850 suggests the prior existence of structures destroyed in the construction of the later units. Many sherds would be left in the disturbed earth by this process. If only a random sherd or two had been found, the occurrence could be interpreted as a collection made by the original site inhabitants from a nearby structure, for example, the Rosa Phase unit at the Martinez Site.

CHAPTER V

EXCAVATIONS AT THE MARTINEZ SITE, LA 4104

by JAMES V. SCISCENTI, ALFRED E. DITTERT, JR., and BETH DICKEY

PROBLEMS AND RESULTS

Surface survey along the proposed realignment right-of-way for the Denver and Rio Grande Western Railroad revealed scattered sherds and a single unit masonry surface structure dating in the Arboles Phase (Dittert, et al, 1961, Table 6). Because of the rare presence of well defined masonry and ceramics, dating late in the Pueblo Period, it was felt that excavations were necessary to salvage information which would contribute to a definition of the little known Arboles Phase.

Setting

LA 4104 is located in the SW 1/4 of the NW 1/4 of Sec. 4, T 32 N, R 5 W, in Archuleta County, Colorado, 2.5 miles north of the recently abandoned town of Arboles. The site lies across a deep gully, and 800 feet north of LA 4103 (Chapter IV). Before purchase by the Bureau of Reclamation, the property belonged to the Victoria Martinez family for whom the site is named.

The site is situated on the front edge of a second level Pleistocene bench atop a sharp ridge. It overlooks the first bench level and the Piedra River to the west, the ridge dropping precipitously from the west wall of the structure. Less than three hundred feet east of the site, a steep, southwesterly-draining arroyo separates the ridge from the rising terrain which culminates in Sandoval Mesa.

Ground cover consists of pinyon, juniper, and sagebrush, as well as short grasses, which occur on the bench below. Economic resources are locally plentiful, including wood, lithics for knapping, water, adobe, and arable farming land on the valley floor.

Description

Prior to excavation, the site was characterized by a readily discernible house mound (10 x 20 ft.), littered with sandstone blocks and river cobbles. Alignments of stones indicated the presence of room walls, and the height of the mound suggested that remaining walls might stand two or three courses high. Few sherds or tools littered the site proper, but bits of adobe and charcoal were spread for about fifty feet, though no identifiable trash deposit was present.

A possibly earlier structure was noted about fifty feet south of Room 1, but the scantiness of remains and lack of time ruled out its excavation. The latter structure may be equated with the late Rosa Phase ceramics found on the surface.

The Gobernador Phase ceramics collected from the surface were also recognized from the original site survey collection, but were not given component status at that time (Dittert, et al, 1961, Table 6). Closer inspection during the period of excavation indicates that many of these sherds were eroding from an area of charcoal to the east of Room 1, which may be a Navajo hogan. Lack of time and the need for excavating the Arboles Phase surface rooms also ruled out work at this structure.

The Martinez family cemetery plot borders the prehistoric site on the south. This cemetery lies directly on the bench edge overlooking a deep gulley which separates the site bench from the Railroad Site.

Excavation revealed two superimposed structures; remains of the upper masonry room were those revealed on the surface, while an older, jacal type structure lay under the floor. Only the masonry house was completely cleared, and this proved to be a surface storage unit.

Research Procedure

The initial step in excavation was to clear the site of vegetation. Several test trenches were dug: first, to define the limits of occupation, second, to determine if refuse was present to any depth around the structures, and third, to locate room walls.

After the upper masonry room was cleared, sub-floor trenches were dug in the floor to test the depth of the lower jacal structure and the nature of the burned roof fall lying between the structures (Fig. 58). However, this lower building was not completely cleared.

Conclusions

Although three separate components of occupation were recognized at the site, excavations were conducted only in the Arboles Phase. Two stratified, surface rooms were revealed, of which the upper and later of the two produced the only tools and ceramics which are identifiable as to phase. The lower room was devoid of artifacts. Room 1 is a masonry, storage structure and rests directly on partially cleared Room 2, of jacal construction.

An eroded, late Rosa Phase structure lies to the south of these units, and a Gobernador Phase hogan to the east. Excavations were not conducted at either because of lack of time, the weathered condition of the remains, and paucity of archaeological value in terms of the cultural history of the entire Reservoir District.

As at the Railroad Site, the high occurrence of corrugated pottery is unusual in terms of the Reservoir as a whole. However, the lack of painted pottery recovered by excavation precludes further understanding of its associations with Piedra and Arboles Black-on-White.

Restorable pottery vessels are limited to one Arboles Gray jar and two Mancos Corrugated jar fragments. The gray jar is the neckless, or "seed jar" form, and was found on the floor, filled with charred corn. This limited occurrence and the further lack of many domestic furnishings (architecture, tools, and painted vessels) led to the interpretation that Room 1 was employed as a storage unit. The study of the corn is presently being undertaken, but results of this analysis have not yet been completed.

Tools are meagerly represented by five stone implements: a unique, shaped, flange graver, an unused maul, and two manos. Three leaves of mica were also recovered, but the lack of modification or of a distinctive association causes doubt as to their use.

Chronological placement of the excavated rooms is based, first on ceramic dating and, second, on stratigraphy. The dating of Mancos Corrugated, prevalent in Surface Room 1, is long-lived elsewhere; however, because it occurs only rarely at Sambrito Village after A.D. 950, it is reasonable to suppose that its span at the Martinez Site is near A.D. 1000 to 1025. The stratigraphically earlier Room 2 did not produce ceramics, but comparison of the cobble-paved floor with similar, architectural remains at the Railroad Site and at Sambrito Village suggests a date in the late Piedra or Arboles Phase, about A.D. 925 - 1000.

ARCHITECTURE

Excavations exposed two stratified structures: a masonry surface structure (No. 1) overlying an earlier jacal surface structure (No. 2). These structures are described in the order in which they were excavated.

SURFACE ROOM 1 (Fig. 58)

Surface Room 1, a one-room, masonry, surface structure, roughly rectangular in shape, has its long dimension in a north-south direction. The north, east, and south walls are constructed of large, shaped, sandstone blocks, held together with little or no binder; at present they stand only one course high. The west wall is of river cobbles, laid in courses held by an adobe binder or mortar. The floor of the room is composed of a layer of clay plaster 0.1 feet thick, laid directly upon the roof fall of an earlier structure, Surface Room 2.

The structure was probably roofed by resting beams on the walls to span the short axis of the room. Additional support was given the roof by placing upright posts inside the room. Five post holes, three along the north wall and two near the south side, were found. A sixth post may have been present in the southwest corner to complete a symmetrical arrangment of two parallel post rows. These holes had been dug into the roof fall of the earlier structure. The interior supports may have been associated with the construction of roof hatchways. Because no break was found in the walls, the method of entry was apparently through the roof.

Fill of the structure consisted of both fallen masonry and the burned, collapsed roof. Blocks of masonry were particulary concentrated along the inside of the north and east walls. The roof fall was composed of burned beams and brick-red, construction clay.

Examination of the clay fragments shows many, parallel, finger-size impressions on one flat face. It is inferred that these are the casts of willow branches, laid as a mat covering in the roof construction. One clay fragment, which also shows the smoothed, upper face, the roof surface, has many, reed leaf imprints, as though a covering of leaves had been laid over the clay, when it was still wet and plastic.

Thus, the roof was probably supported by a horizontal frame of heavy beams. Over these was laid a mat of close-set, parallel, willow branches. The one complete clay fragment shows that the mud layer over the branches was 0.15 feet thick. It was smoothed on its upper surface; and reed leaves were also pressed into the mud.

The lack of a hearth and the absence of many household artifacts suggest that the structure was utilized as a storage unit. This hypothesis is further supported by the presence of a jar sitting on the floor and containing charred corn.

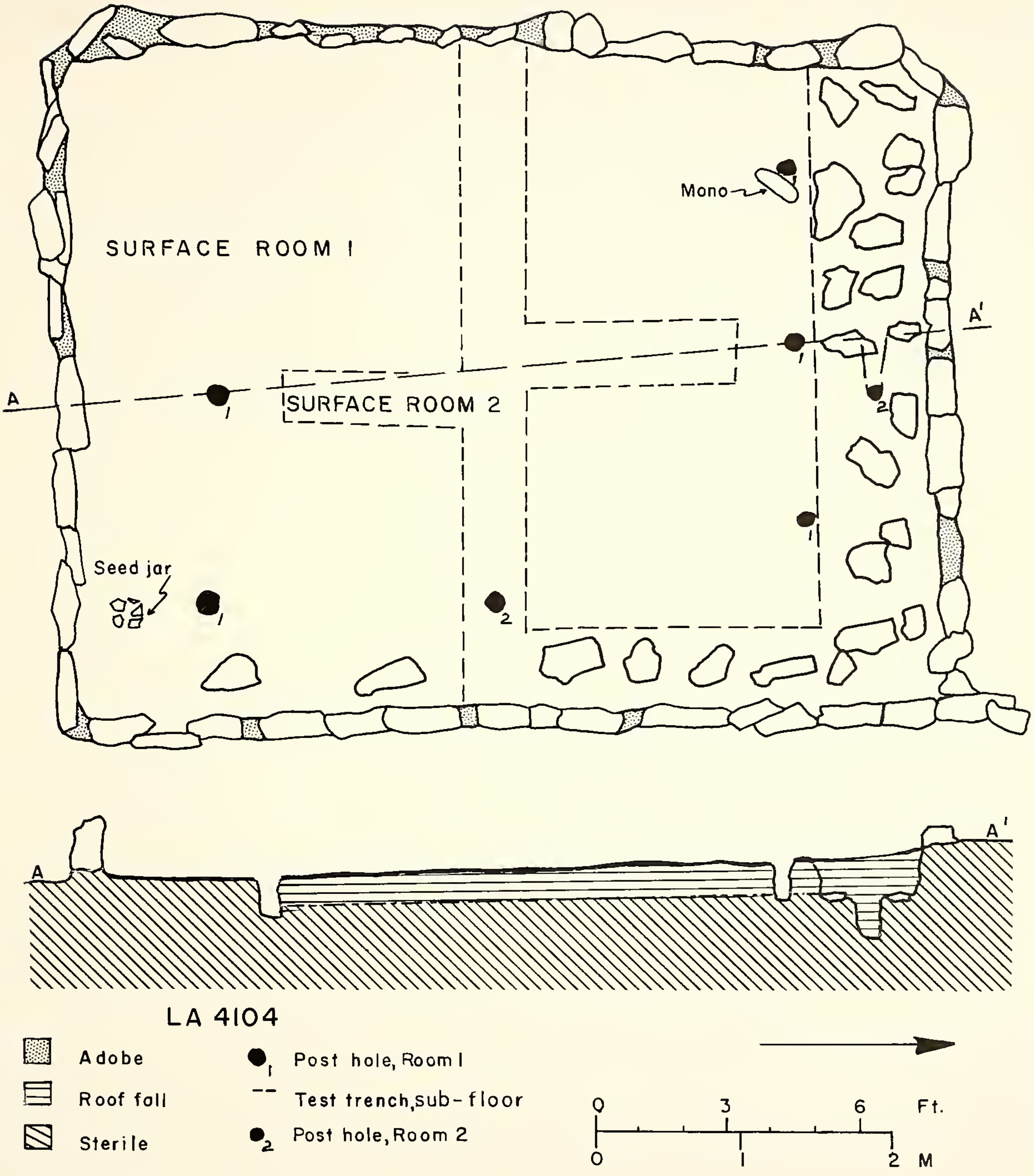

Fig. 58. Plan and profile of superimposed Surface Rooms 1 and 2, Martinez Site. Structure 1 is outlined by the rectangular, masonry wall, while underlying Structure 2 is only exposed by the sub-floor trench system shown by the dashed line. Post holes designated with a subscript 1 were used for the upper room, while those marked with a 2 go with Structure 2. Extent of roof fall, filling Structure 2, which is shown on Profile A-A', is approximate.

SURFACE ROOM 2 (Fig. 58)

Stratigraphically underlying the masonry unit, is the earlier Surface Room 2. The quantity of burned, construction clay and charcoal fill indicates that the walls were of jacal, that is, poles and brush covered with a heavy, clay coating. Two post holes found in the floor, were used for upright supports. The house limits probably correspond closely to those of Structure 1, but they were not defined by excavation. The floor is composed of cobbles held together by mortar, and is similar to that in the storage rooms of the Railroad Site.

The presence of charcoal and of a metate fragment under the floor indicates that Structure 2 was burned and rebuilt. A second burning, evidenced by the collapsed roof lying on top of the floor, led to the final abandonment. Some of the floor cobbles may have been removed later for use in the west wall construction of Structure 1.

ARTIFACTS

Ceramics

The collection of pottery shown in Table 16 is not large, but the distinctive types, together with the architectural remains and surface indications, justify statements concerning the utilization of the site location. The types may be grouped into three phases and the phases correlated with occupation units:

GOBERNADOR PHASE

Dinetah Utility and a sherd of a late Rio Grande glaze, unidentified as to type, combine to indicate a brief occupation during the Gobernador Phase, A.D. 1700-1775 (Dittert, *et al*, 1961, p.246). Remains of this unit are located on the east side of the site bench.

ARBOLES PHASE

Pottery types, representative of the Arboles Phase, are: Arboles Gray (Dittert, *et al*, 1963b), Mancos Corrugated (Abel, 1955, Ware 10A-Type 5), and Payan Corrugated (Chapter IV). Sherds of this group were found primarily in the excavated structures, and are used to date the occupation of Surface Room 1. The Arboles Gray sherds constitute a restorable vessel found on the floor of Surface Structure 1. Type criteria are identical with materials recovered at Sambrito Village. Dates for the type range from A.D. 850 to 1050, but the example from Surface Structure 1 is a late form of the type that occurs about A.D. 1000.

Mancos Corrugated sherds from Surface Structure 1 represent two fragmentary vessels. Dates in the type des-

TABLE 16

OCCURRENCE OF CERAMIC TYPES BY PROVENIENCE, MARTINEZ SITE (in per cent)

PROVENIENCE / TYPE	Surf. Collection	Surf. Room 1 Roof fall
Dinetah Utility	8.2	-
Late Rio Grande glaze	1.6	-
Arboles Gray	-	34.1
Mancos Corrugated	18.0	58.0
Payan Corrugated	-	5.7
Piedra Gray	14.8	0.9
Piedra B/W	1.6	-
Rosa Gray	49.2	0.9
Rosa Neckbanded	-	0.4
Rosa B/W	4.9	-
Rosa Brown	1.6	-
TOTAL PER CENT	99.9	100.0
TOTAL SHERDS	61	226

cription give a range of A. D. 900 to 1200. At Sambrito Village, sherds of Mancos Corrugated are rare, and occur only in the latest deposits after A. D. 950. Their presence at the Martinez Site, combined with the Arboles Gray variety, suggests a date after 1000 for the habitation. Payan Corrugated is probably contemporaneous with Mancos Corrugated.

ROSA PHASE

The majority of the sherds in this group, namely, Rosa Brown, Rosa Black-on-White, and Piedra Gray, are associated with the remains of a structure immediately south of the excavated unit. The occurrence of a few examples from this group, in Surface Room 1, probably resulted from accidental inclusion in the roof adobe, or from use as chinks between masonry blocks.

Although a wide variety of pottery types are grouped together as representative of the Rosa Phase at the Martinez Site, similar associations accur at Sambrito Village. Structures there, with this distribution of types, are placed in the late Rosa Phase, or about A. D. 825-850. It is suggested that the unexcavated, Rosa Phase unit at the Martinez Site dates at about the same time.

Clay Artifacts

Clay artifacts from the Martinez Site are limited to one restored, Arboles Gray vessel and two fragmentary, Mancos Corrugated vessels. The examples are described below.

ARBOLES GRAY JAR (1)

When found on the floor of Surface Structure 1, the Arboles Gray jar was held together by the fill and contained charred corn. The form is a neckless jar, or a "seed jar." The lower third of the vessel was formed in a basket, but the impressions have been obliterated. Junction of the lower and upper walls failed to form a good bond, and a developed crack was filled with pitch. Two other cracks were secured by pairs of conical holes, presumably with introduced fiber or animal tissue.

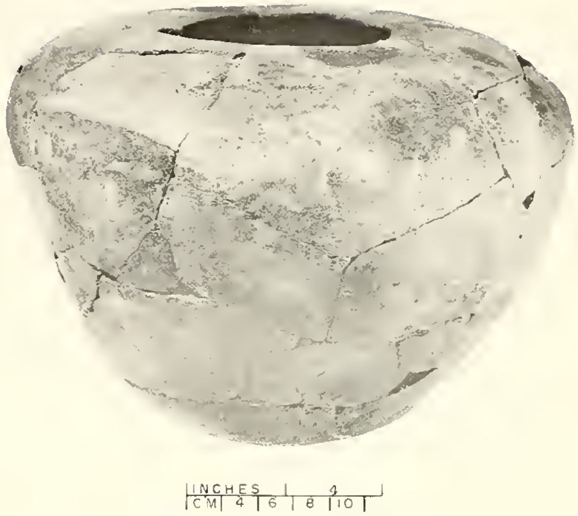

Fig. 59. Arboles Gray jar found on the floor of Surface Room 1, Martinez Site.

The paste is soft, compact, slightly granular, and contains temper of abundant, very fine-to-coarse, rounded grains of quartz, feldspar, and andesite. Mica flecks are noticeable. The vessel surface is uneven and exhibits scraping and random, polishing marks. The attributes are within the range of Arboles Gray that is described for the latest deposits at Sambrito Village. Size: height, 8.8 inches; maximum diameter, 11.6 inches; average wall thickness, 0.25 inches; volume, 3.9 dry quarts (Fig. 59).

MANCOS CORRUGATED
JAR FRAGMENTS (2)

Two fragmentary Mancos Corrugated vessels occurred in the fill of Surface

Room 1. Form is the typical, almost cylindrical shape, described by Abel (1955, Ware 10A - Type 5). Surface treatment is over-all, deeply indented corrugations without decorative variations. Paste and temper correspond to the type description. Size of the best example: height, 15.2 inches; diameter, approximately 7.0 inches; wall thickness range, 0.3 - 0.4 inches (Fig. 60).

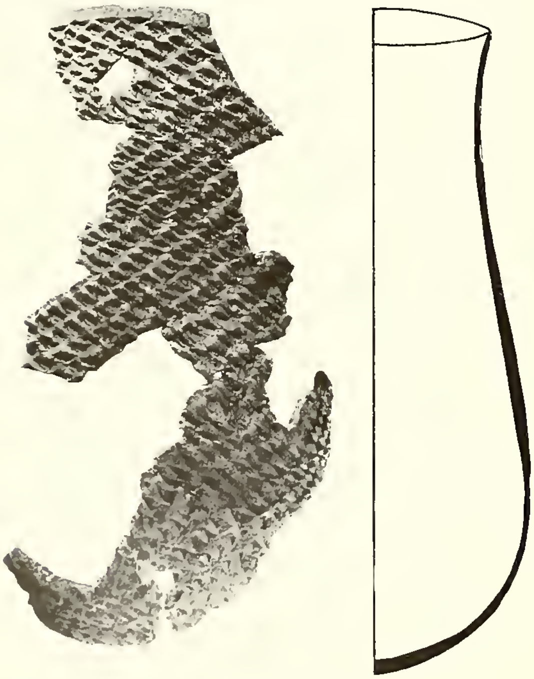

Fig. 60. Mancos Corrugated jar from Surface Room 1, Martinez Site.

Stone Artifacts

The few stone artifacts are all from the floor of Surface Room 1, and are compatible with a date of A. D. 1000 to 1025. Of these, the only artifact which did not come into use much earlier is the graver. This graver form, having a shaped flange, was found neither at Sambrito Village (Dittert, et al, 1963b) nor during the survey (Dittert, et al, 1961, p. 181). It may be characteristic of Arboles Phase and to be expected only on the latest sites in the Reservoir north of Arboles, Colorado.

GRAVER (1)

In form, the graver is triangular-shaped, having rounded corners and a short, tapering point, centered on the triangle base. It was produced from a primary flake of chalcedony by bifacial pressure-chipping around the entire perimeter. The flake body is a shaped flange suitable for finger-gripping. A distinction between this tool and other examples from the Reservoir District is noted in the occurrence of the point along an edge, instead of at a flake corner. Size: length, 0.85 inches; width, 0.65 inches; thickness, 0.18 inches; tip length, 0.13 inches; tip angle,30 degrees (Fig. 61d).

AXE (1)

A single-bit, flaked axe exhibits some pecking to smooth the notches, and

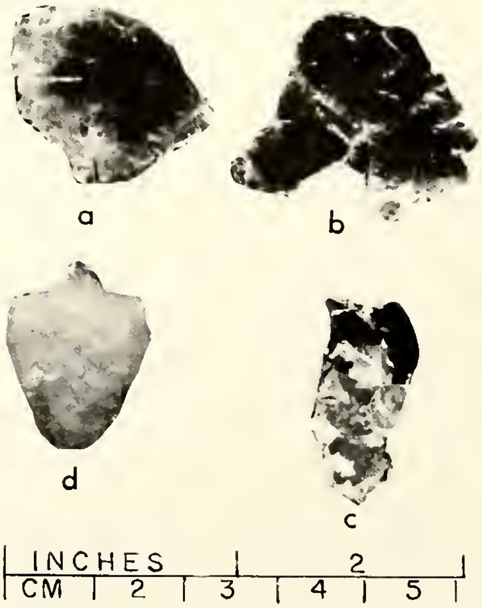

Fig. 61. Graver and mica sheets, Martinez Site. a-c, mica sheets; d, graver.

some grinding across one face between the notches. The bit is bifacially flaked, and shows no grinding and only slight evidence of use. The poll has had two flakes removed, which might have constituted a start at making a second bit or a poll notch. The side notches are located slightly toward the poll side of center. The axe head is made of a naturally flat cobble of fine-grain sandstone. The form is typical of axes from the late Pueblo Period, found throughout the Reservoir (Dittert, et al, 1961, p. 178). Size: length, 7.6 inches; width, 4.8 inches; thickness, 1.4 inches; weight, 38.41 ounces (Fig. 62a).

MAUL (1)

The groove around the cobble maul was never completed, and the maul shows no evidence of use. It was formed from an oval-shaped cobble of compact, medium-grain, igneous rock. A shallow groove is pecked three-fourths of the way around the middle. Size: length, 7.5 inches; width, 4.7 inches; thickness, 2.6 inches; weight, 79.9 ounces (Fig. 62b).

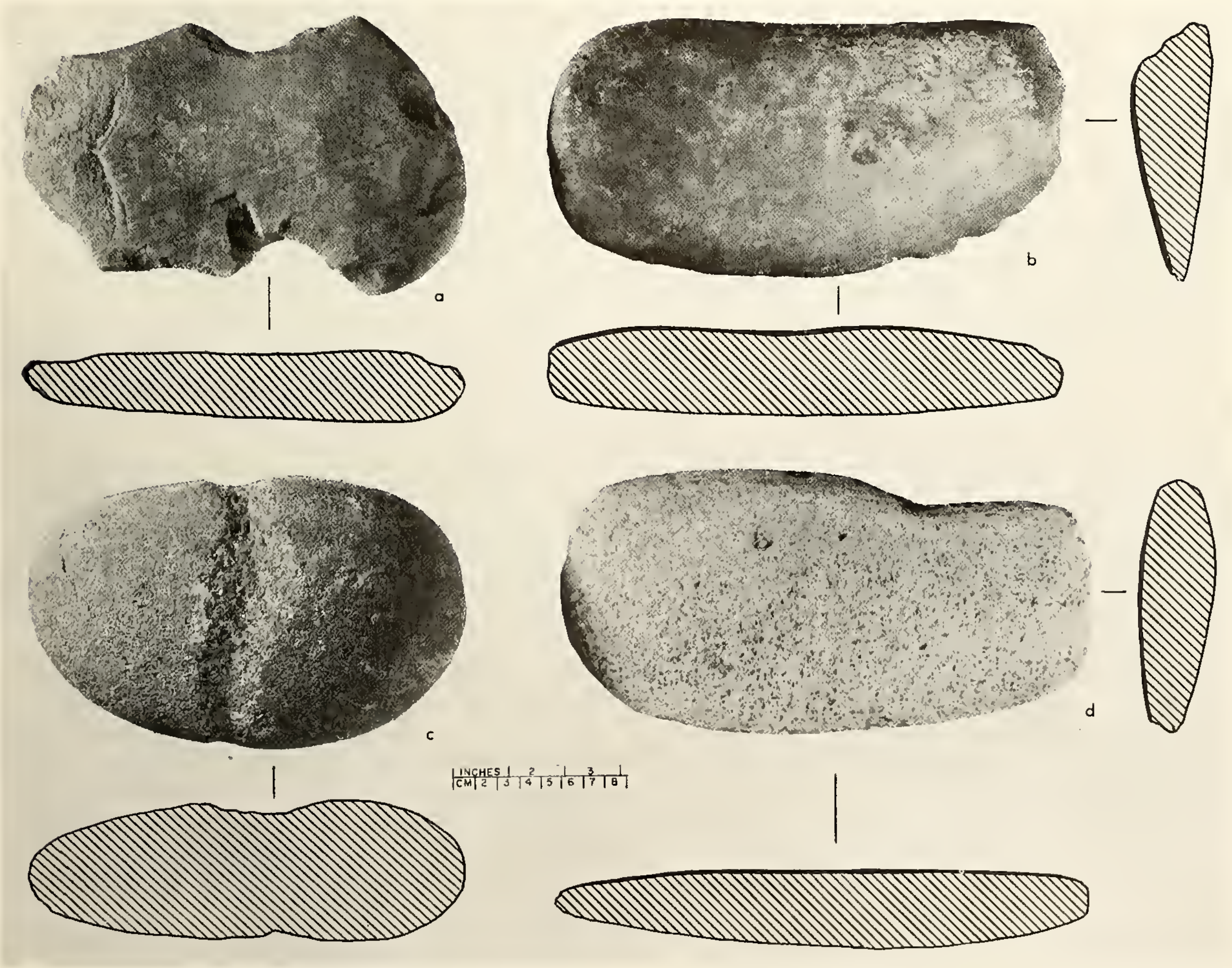

Fig. 62. Axe, maul, and manos, Martinez Site. a, axe; b, d, manos; c, unfinished maul.

MANOS (2)

Both specimens are two-hand manos, made from cobbles by pecking and grinding. They are pecked on the edges and ends to form a roughly rectangular outline. One has been slightly pecked and ground on the upper face, in addition to modification of the grinding face, but not sufficiently to be considered a bifacial mano. The other, which is more worn, has a pecked, finger depression in the center of the distal edge. Both appear to have been used in the same metate, which was, probably a Type D, open-end trough (Dittert, et al, 1963b). One mano is made of medium-grain, and the other, of fine-grain sandstone. Size: lengths, 4.8 and 4.6 inches; widths, 9.4 and 9.5 inches; thicknesses, 1.6 and 1.5 inches; weights, 53.29 and 56.36 ounces; wear stages, worn and used (Fig. 62c-d).

MICA (3)

Thin, unworked sheets of muscovite mica were not directly associated with any of the other artifacts, and their significance is not clearly determinable. They were intentionally brought into the structure, and they may have had some ceremonial significance. Size: lengths, 0.8 - 1.0 inches; widths, 0.4 - 0.9 inches (Fig. 61a-c).

CHRONOLOGY

The temporal and cultural placement of features at the Martinez Site is based on the occurrence and distribution of ceramics and the superposition of architectural remains. No specimens suitable for dendrochronology were recovered.

Ceramic Dating

In a previous section, the occurrence of ceramics at the Martinez Site is outlined. Based on the associations and dates derived from previously analyzed collections, three phases of occupation can be demonstrated here. The latest, a Gobernador Phase unit, A.D. 1700 - 1775, was not excavated, because of the eroded condition. Similarly, the earliest unit was not excavated, but the relative percentages of pottery types, when compared with structures at Sambrito Village, suggest a date of A.D. 825 - 850, or a cultural placement in the late Rosa Phase.

The excavated Surface Room 1 can be assigned to the Arboles Phase, probably between A.D. 1000 and 1025. Unfortunately, painted forms are not present, and the types present are long-lived. Because Mancos Corrugated does not appear until the very end of the occupation at Sambrito Village, and the Arboles Gray jar is a late variety of the type, it is assumed that the above date is reasonably accurate.

Stratigraphy

Excavations below the floor of Surface Structure 1 revealed an earlier floor, composed of cobbles set in adobe. The earlier structure, Surface Structure 2, had burned, and Surface Structure 1 was built directly over it. The absence of sherds or dendrochronology specimens in the fill between the floors makes possible only relative dating and a comparison with architecture elsewhere. Similarities with the surface structures at the Railroad Site and with the cobble-floored houses at Sambrito Village suggest a placement near the end of the Piedra Phase, or in the early Arboles Phase, A.D. 925 - 975. A date within this range would fit the slightly later date derived for Surface Structure 1.

APPENDIX

LIST OF PREVIOUS NAVAJO PROJECT STUDIES

Study Number	Publication
I	Dittert, A.E., Jr. 1958 Preliminary Archaeological Investigations in the Navajo Project Area of Northwestern New Mexico. Museum of New Mexico Papers in Anthropology, No. 1. The Museum of New Mexico and the School of American Research.
II	Dittert, A.E., Jr., J.J. Hester, and F.W. Eddy 1961 An Archaeological Survey of the Navajo Reservoir District, Northwestern New Mexico. Monograph of the School of American Research and the Museum of New Mexico, No. 23.
III	Greminger, H.C. (Assembler) 1961 Papers from a Training Program in Salvage Archaeology. Museum of New Mexico Papers in Anthropology, No. 3.
IV	Eddy, F.W. 1961 Excavations at Los Pinos Phase Sites in the Navajo Reservoir District. Museum of New Mexico Papers in Anthropology, No. 4.
V	Hester, J. J. 1962 Early Navajo Migrations and Acculturation in the Southwest. Museum of New Mexico Papers in Anthropology, No. 6.
VI	Schaafsma, P. 1963 Rock Art in the Navajo Reservoir District. Museum of New Mexico Papers in Anthropology, No. 7.
VII	Harris, A. H. 1963 Ecological Distribution of Some Vertebrates in the San Juan Basin, New Mexico. Museum of New Mexico Papers in Anthropology, No. 8.
VIII	Hester, J. J., and J. L. Shiner 1963 Studies at Navajo Period Sites in the Navajo Reservoir District. Museum of New Mexico Papers in Anthropology, No. 9.

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